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CITY OF AUSTIN, TEXAS
AUSTIN WATER UTILITY

FOUR POINTS ELEVATED RESERVOIR IMPROVEMENTS

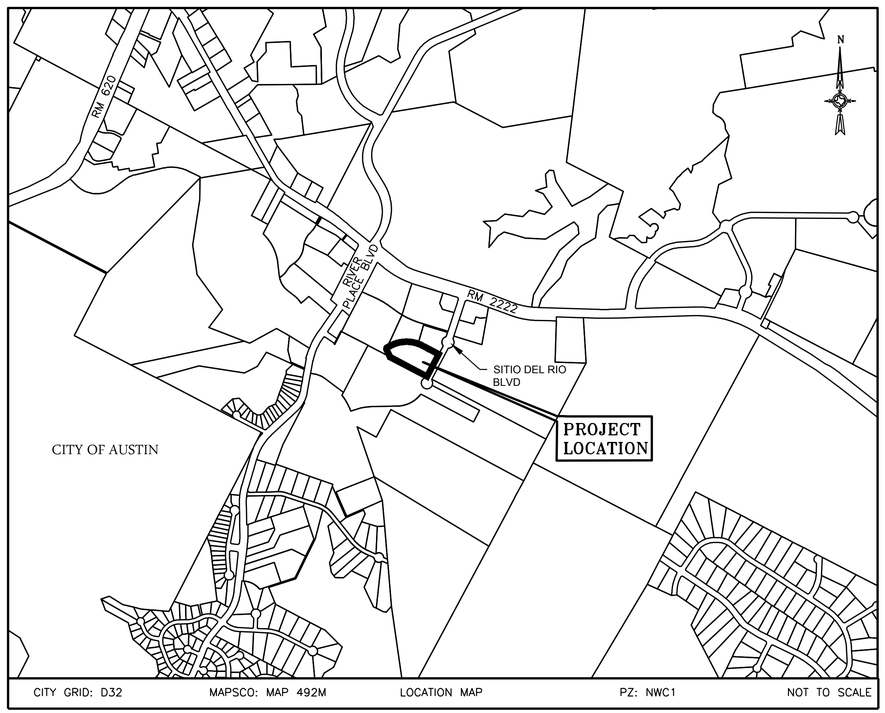
C.I.P. I.D. NO. 2127.034

ISSUED FOR BID

IFB NO. 6100 CLMC624

NOTES:

1. CONTRACTOR SHALL NOTIFY THE PUBLIC WORKS DEPARTMENT 24 HOURS PRIOR TO STARTING CONSTRUCTION OR CLEARING OPERATIONS.
2. CONTRACTOR SHALL CALL "ONE CALL" AT 1-800-344-8377 FOR UTILITY LOCATIONS AT LEAST 48 HOURS PRIOR TO ANY WORK IN CITY EASEMENTS OR STREET RIGHT OF WAYS.
3. THIS PROJECT IS LOCATED WITHIN THE WEST BULL CREEK WATERSHED (CLASSIFIED AS N/A) AND SHALL BE DEVELOPED, CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH CHAPTER 25 OF THE CODE OF THE CITY OF AUSTIN.
4. _ A/NO X PORTION OF THIS SITE IS LOCATED WITHIN PARKLAND OR LAND USED FOR PARK PURPOSES.
5. _ A/NO X PORTION OF THIS SITE IS LOCATED WITHIN THE 100-YEAR FLOODPLAIN, PER CITY OF AUSTIN AND FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAPS.
6. THIS PROJECT X IS/IS NOT _ WITHIN THE EDWARDS AQUIFER RECHARGE ZONE AS DEFINED BY THE CITY OF AUSTIN. THIS PROJECT X IS/IS NOT _ WITHIN THE EDWARDS AQUIFER RECHARGE ZONE AS REGULATED BY THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ).
7. THERE _ ARE/ARE NOT X CRITICAL ENVIRONMENTAL FEATURES WITHIN 150' OF ANY PORTION OF THIS PROJECT. A FIELD INVESTIGATION X HAS BEEN PERFORMED AS A PART OF THIS PROJECT. A FIELD INVESTIGATION _ HAS NOT BEEN PERFORMED AS A PART OF THIS PROJECT AND IS NOT REQUIRED.
8. APPROPRIATE EASEMENT/APPROVALS MUST BE SECURED AND DOCUMENTED FOR PROJECT AREAS LOCATED OUTSIDE OF RIGHT OF WAYS. NO WORK SHALL BE PERFORMED WITHIN THESE AREAS UNTIL ASSOCIATED RIGHT OF ENTRY HAS BEEN SECURED.



CITY GRID: D32 MAPSCO: MAP 492M LOCATION MAP PZ: NWC1 NOT TO SCALE

PROJECT INFORMATION:

STREET ADDRESS:
6000 1/2 SITIO DEL RIO BLVD
AUSTIN, TX 78730
COA GRID: D32
MAPSCO: MAP 492M

OWNER:
CITY OF AUSTIN
WATER UTILITY
P.O. BOX 1088
AUSTIN, TEXAS 78767
(512) 974-2000

CONTACT:
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SUBMITTAL PREPARED BY:

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STATE OF TEXAS
CHARLES A. KUCHERKA
98388
LICENSED
PROFESSIONAL ENGINEER
9/27/16

Freese and Nichols, Inc.
Texas Registered Engineering Firm F-2144

APPROVALS:

SUBMITTED FOR APPROVAL BY:

PROJECT ENGINEER – CHARLES A. KUCHERKA, P.E. DATE 9/27/2016

REVIEWED BY:

AUSTIN WATER UTILITY DATE

STRUCTURAL SUBCONSULTANT:
JOSE I. GUERRA, INC. CONSULTING ENGINEERS
2401 SOUTH IH35, SUITE 210
AUSTIN, TEXAS 78741
(512) 445-2090
TBPE FIRM NO. F-3

CIVIL SUBCONSULTANT:
HEJL, LEE & ASSOCIATES, INC.
321 ED SCHMIDT BLVD.
SUITE 100
HUTTO, TX 78634
(512) 642-3292
TBPE FIRM NO. F-755

COATING SUBCONSULTANT:
BOSWELLS CONSULTING TESTING SERVICES
1503 SAGEBRUSH
ROUND ROCK, TEXAS 78681
(512) 426-3380

ELECTRICAL SUBCONSULTANT:
HARUTUNIAN ENGINEERING INC.
305 EAST HUNTLAND DRIVE
AUSTIN, TEXAS 78752
(512) 454-2788
TBPE FIRM NO. F-2408

"ALL RESPONSIBILITY FOR THE ADEQUACY OF THESE PLANS REMAIN WITH THE ENGINEER WHO PREPARED THEM. IN APPROVING THESE PLANS, THE CITY OF AUSTIN MUST RELY UPON THE ADEQUACY OF THE WORK OF THE DESIGN ENGINEER. "

No.	REVISION DESCRIPTION	REVIEWED BY:	DATE

GENERAL NOTES:

1. LOCATIONS, SIZES, AND DEPTHS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN BASED ON INFORMATION PROVIDED TO THE ENGINEER BY OTHERS AND CANNOT BE GUARANTEED TO BE ACCURATE OR ALL INCLUSIVE. THE CONTRACTOR IS RESPONSIBLE FOR MAKING HIS OWN DETERMINATIONS AS TO THE TYPE AND LOCATION OF ALL UNDERGROUND AND OTHER UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADVANCE NOTIFICATION OF UTILITY COMPANIES HAVING PROPERTY IN THE CONSTRUCTION AREA PRIOR TO ANY EXCAVATION. IF SITUATIONS ARE ENCOUNTERED DIFFERENT THAN SHOWN ON THE DRAWINGS THAT AFFECT THE INSTALLATION OF THE IMPROVEMENTS, THE CONTRACTOR SHALL CONTACT THE ENGINEER IMMEDIATELY AND PREPARE A REQUEST FOR INFORMATION OR CONTRACTOR'S MODIFICATION REQUEST.

2. THE CONTRACTOR SHALL UNCOVER AND VERIFY THE DEPTHS AND HORIZONTAL LOCATION OF ALL EXISTING WATER AND WASTEWATER MAINS TO BE EXTENDED TO, ALTERED OR SUBJECT TO DAMAGE OR INCONVENIENCE BY THIS PROJECT PRIOR TO COMMENCING CONSTRUCTION. NO SEPARATE PAY.

3. PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITIES, THE CONTRACTOR SHALL CAREFULLY REVIEW AND BECOME FAMILIAR WITH ALL PERMIT REQUIREMENTS ASSOCIATED WITH THE PROJECT. THE PERMITS CONTAIN SPECIAL CONDITIONS THAT THE CONTRACTOR WILL BE REQUIRED TO FOLLOW. ALL WORK ASSOCIATED WITH THE PERMIT REQUIREMENTS WILL BE CONSIDERED SUBSIDIARY TO THE PROJECT AND NO SEPARATE MEASUREMENT OR PAYMENT WILL BE MADE.

4. IF ANY CHANGES ARE PROPOSED TO THE PROJECT BY THE CONTRACTOR (I.E. ADDING A DIFFERENT STAGING AREA), THE CONTRACTOR SHALL SUBMIT A REVISED SITE LAYOUT TO THE ENGINEER FOR REVIEW.

5. FENCES, GATES, GROUND SURFACES, CURBS, DRIVEWAYS, MAIL BOXES, ETC. SHALL BE LEFT IN A CONDITION EQUAL OR BETTER THAN THAT FOUND. TEMPORARY LIVESTOCK FENCING (MATCH EXISTING WIRE) SHALL BE INSTALLED WHEN REQUIRED TO CONTAIN LIVESTOCK IN ADDITION TO ANY OTHER REQUIREMENTS OUTLINED IN THE SITE CERTIFICATES. COORDINATION SHALL BE WITH THE PROPERTY OWNER. ALL FENCES SHALL BE REINSTALLED IN ORIGINAL LOCATION OF THE SAME TYPE UNLESS OTHERWISE DIRECTED BY THE OWNER.

6. THE CONTRACTOR SHALL PROVIDE ALL TRAFFIC CONTROL AS NECESSARY TO PERFORM THE CONSTRUCTION IN A SAFE MANNER TO PROTECT THE PUBLIC SAFETY. THE CONTRACTOR IS TO OBTAIN PERMIT, IF REQUIRED, PRIOR TO BLOCKING ANY PORTION OF THE ROADWAY (NO SEPARATE PAY).

7. THE CONTRACTOR SHALL GIVE NOTICE TO ALL AUTHORIZED INSPECTORS, SUPERINTENDENTS, OR PERSONS IN CHARGE OF UTILITIES AFFECTED BY HIS OPERATIONS PRIOR TO COMMENCING WORK. THE CONTRACTOR IS RESPONSIBLE FOR ASSURING THAT ALL PERMITS NECESSARY TO LEGALLY CONSTRUCT THE PROJECT HAVE BEEN OBTAINED PRIOR TO COMMENCING WORK. REQUIRED PERMITS ISSUED TO THE CONTRACTOR ONLY WILL BE OBTAINED AT THE CONTRACTOR'S EXPENSE.

8. FINAL PAYMENT FOR THIS PROJECT IS CONTINGENT UPON ACCEPTANCE OF ALL FACILITIES BY THE CITY OF AUSTIN.

9. ALL CONCRETE SHALL BE TYPE A PER COA SPECIFICATION NO. 403S UNLESS OTHERWISE NOTED.

10. ENVIRONMENTAL TESTING MAY BE REQUIRED BY THE CONTRACTOR TO IDENTIFY ENVIRONMENTAL HAZARDS SUCH AS ASBESTOS, LEAD PAINT, ETC. PRIOR TO COMMENCING DEMOLITION ACTIVITIES. ANY ENVIRONMENTAL HAZARDS IDENTIFIED ARE REQUIRED TO BE REMEDIATED AND DISPOSED OF APPROPRIATELY PER THE APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS AT THE CONTRACTOR'S EXPENSE.

PROPOSED WATER NOTES:

1. EXISTING UTILITIES ARE SHOWN IN PLAN ACCORDING TO THE BEST AVAILABLE SURVEY AND RECORD INFORMATION AT THE DATE OF THE PLANS. THE DOCUMENTS USED TO PREPARE THE EXISTING UTILITIES BASEMAP ARE AVAILABLE FOR THE CONTRACTOR'S REVIEW. THE CONTRACTOR IS RESPONSIBLE FOR PROTECTING ALL EXISTING UTILITIES AND FOR REPLACING ALL DAMAGED KNOWN EXISTING UTILITIES.

2. EXISTING UTILITIES ARE SHOWN IN PROFILE ACCORDING TO THE BEST AVAILABLE RECORD PROFILE INFORMATION AT THE DATE OF THE PLANS. EXISTING UTILITIES FOR WHICH NO RECORD PROFILE INFORMATION IS AVAILABLE ARE SHOWN AS "UNK". PROPOSED UTILITIES FOR WHICH THE CONTRACTOR WILL ESTABLISH THE FLOWLINE ARE SHOWN AS "TBD".

3. ALL PROPOSED D.I. PIPE SHALL BE CLASS-350 DUCTILE IRON WATER PIPE.

4. RESTRAIN THE JOINTS OF EXISTING WATER PIPE A MINIMUM OF 1 FOOT AT ALL PROPOSED WET CONNECTIONS, OR AS SPECIFICALLY REQUIRED ON THE PLANS.

AUSTIN WATER GENERAL CONSTRUCTION NOTES:

June 07, 2016

1. THE CITY STANDARD CONSTRUCTION SPECIFICATIONS CURRENT AT THE TIME OF BIDDING SHALL COVER MATERIAL AND METHODS USED TO DO THIS WORK.

2. CONTRACTOR MUST OBTAIN A STREET CUT PERMIT FROM AUSTIN TRANSPORTATION DEPARTMENT, RIGHT OF WAY MANAGEMENT DIVISION BEFORE BEGINNING CONSTRUCTION WITHIN THE RIGHT-OF-WAY OF A PUBLIC STREET OR ALLEY.

3. AT LEAST 48 HOURS BEFORE BEGINNING ANY WATER AND WASTEWATER CONSTRUCTION IN PUBLIC R.O.W. OR PUBLIC EASEMENT, THE CONTRACTOR SHALL NOTIFY AUSTIN TRANSPORTATION INSPECTION OR DEVELOPMENT SERVICES DEPARTMENT, SITES AND SUBDIVISION INSPECTION, AT THE NUMBER INDICATED ON THE PLANS BY THE AW PLAN REVIEWER.

4. THE CONTRACTOR SHALL CONTACT THE AUSTIN AREA "ONE CALL" SYSTEM AT 1-800-344-8377 FOR EXISTING UTILITY LOCATIONS PRIOR TO ANY EXCAVATION IN ADVANCE OF CONSTRUCTION. THE CONTRACTOR SHALL VERIFY THE LOCATIONS OF ALL UTILITIES TO BE EXTENDED, TIED TO, OR ALTERED, OR SUBJECT TO DAMAGE/INCONVENIENCE BY THE CONSTRUCTION OPERATIONS. THE AUSTIN WATER MAINTENANCE RESPONSIBILITY ENDS AT R.O.W./EASEMENT LINES.

5. NO OTHER UTILITY SERVICE/APPURTENANCES SHALL BE PLACED NEAR THE PROPERTY LINE, OR OTHER ASSIGNED LOCATION DESIGNATED FOR WATER, RECLAIMED WATER AND WASTEWATER UTILITY SERVICE THAT WOULD INTERFERE WITH THE WATER, RECLAIMED WATER AND WASTEWATER SERVICES.

6. THE CITY SPECIFICATION ITEM 509S WILL BE REQUIRED AS A MINIMUM TRENCH SAFETY MEASURE.

7. ALL MATERIALS TESTS, INCLUDING SOIL DENSITY TESTS AND DETAILED SOIL ANALYSES, SHALL BE CONDUCTED BY AN INDEPENDENT LABORATORY AND FUNDED BY THE OWNER IN ACCORDANCE WITH CITY STANDARD SPECIFICATION ITEM 1804S.04.

8. PRESSURE TAPS SHALL BE IN ACCORDANCE WITH CITY STANDARD SPECIFICATION ITEM 510.3(24). THE CONTRACTOR SHALL PERFORM EXCAVATION ETC., AND SHALL FURNISH, INSTALL AND AIR TEST THE SLEEVE AND VALVE. WHEN CONTRACTORS MAKE THE TAP A CITY INSPECTOR MUST BE PRESENT AND 2 WORKING DAYS (MIN.) NOTICE MUST BE GIVEN. "SIZE ON SIZE" TAPS WILL NOT BE PERMITTED, UNLESS, IT HAS BEEN DEMONSTRATED THAT A MORE ACCEPTABLE CONNECTION WOULD INVOLVE CONSIDERABLE HARDSHIP TO THE UTILITY SYSTEM. ALL TAPS SHALL BE MADE BY USE OF AN APPROVED FULL CIRCLE-GASKETED CAST IRON OR DUCTILE IRON TAPPING SLEEVE. CONCRETE BLOCKING SHALL BE PLACED UNDER ALL TAP SLEEVES PRIOR TO MAKING THE PRESSURE TAP AND THE USE OF PRECAST BLOCKS MAY BE USED TO HOLD THE TAP IN ITS CORRECT POSITION PRIOR TO BLOCKING. THE BLOCKING BEHIND AND UNDER THE TAP SHALL HAVE A MINIMUM OF 24 HOURS CURING TIME BEFORE THE VALVE CAN BE RE-OPENED FOR SERVICE FROM THAT TAP.

9. THRUST RESTRAINT SHALL BE IN ACCORDANCE WITH CITY STANDARD SPECIFICATION ITEM 510.3 (22).

10. ALL BRANCH CONNECTIONS SHALL HAVE THE VALVE BOLTED TO THE MAIN BY METHODS OF FLANGE OR SWIVEL TEES. FOSTER ADAPTORS MAY BE USED IN LIEU OF FLANGE OR SWIVEL TEES WHEN CALLED OUT ON THE PLANS BY THE DESIGN ENGINEER.

11. A). FIRE HYDRANTS SHALL BE SET IN ACCORDANCE WITH CITY STANDARD SPECIFICATION ITEM 511S.4 B). FIRE HYDRANTS SHALL BE PAINTED FLYNT ALUMINUM OR EQUAL.

12. WATER LINE TESTING AND STERILIZATION SHALL BE PERFORMED IN ACCORDANCE WITH CITY STANDARD SPECIFICATION ITEMS 510.3 (27)-(29). FORCE MAIN PRESSURE TESTING SHALL BE CONDUCTED AND FALL UNDER THE SPECIFICATIONS AS WATER LINES (PRESSURE PIPE) OR AT THE PRESSURES SHOWN ON THE APPROVED PLANS.

13. ALL MATERIAL USED ON THIS PROJECT MUST BE LISTED ON THE STANDARD PRODUCTS LISTING. ANY MATERIAL NOT LISTED HAS TO GO THROUGH THE REVIEW OF THE STANDARDS COMMITTEE FOR REVIEW AND APPROVAL <u>PRIOR TO START OF PROJECT.</u> TESTING AND EVALUATION OF PRODUCTS ARE REQUIRED BEFORE APPROVAL WILL BE GIVEN ANY CONSIDERATION.

14. WHEN WATER SERVICES ARE DAMAGED AND THE SERVICE MATERIAL IS PE, THE LINE SHALL BE REPAIRED ONLY BY HEAT FUSION WELD OR REPLACED THE FULL LENGTH WITH TYPE K COPPER MATERIAL. <u>ANY TIME PB IS DAMAGED OR TAMPERED WITH IN ANY WAY, THE SERVICE LINE SHALL BE REPLACED FULL LENGTH WITH TYPE K COPPER MATERIAL.</u> NOTE: FULL LENGTH IS FROM CORPORATION STOP TO METER.

15. WHEN AN EXISTING WATERLINE SHUT OUT IS NECESSARY AND POSSIBLE, THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION INSPECTOR WHO WILL THEN NOTIFY THE AUSTIN WATER DISPATCH AND THE AFFECTED CUSTOMERS A MINIMUM OF SEVENTY-TWO (72) HOURS IN ADVANCE.

AUSTIN WATER GENERAL CONSTRUCTION NOTES:

June 07, 2016

16. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION INSPECTOR SO THAT HE CAN NOTIFY THE AUSTIN WATER AT 972--0000 AT A MINIMUM OF 72 HOURS PRIOR TO RELOCATING ANY DOMESTIC OR FIRE DEMAND WATER METERS. THE CONTRACTOR SHALL CAREFULLY REMOVE ALL METERS AND METERS BOXES THAT ARE INDICATED TO BE RELOCATED OR SALVAGED. THE CONTRACTOR SHALL INSTALL THE REMOVED METER OR CITY PROVIDED METER AT THE NEW LOCATION INDICATED ON THE CONSTRUCTION PLANS.

17. ALL MANHOLES IN UNPAVED AREAS PROVIDING DIRECT ACCESS TO A WASTEWATER LINE SHALL BE WATERTIGHT AND BEAR THE WORDING AND INSIGNIA FOR THE CITY OF AUSTIN.

18. THE CONTRACTOR SHALL VERIFY ALL VERTICAL AND HORIZONTAL LOCATIONS OF EXISTING UTILITIES PRIOR TO STARTING ONSITE UTILITY WORK.

19. ALL RESPONSIBILITY FOR THE ADEQUACY OF THESE PLANS REMAINS WITH THE ENGINEER WHO PREPARED THEM. APPROVAL OF THESE PLANS BY THE CITY OF AUSTIN DOES NOT REMOVE THESE RESPONSIBILITIES.

20. REVIEW BY AUSTIN WATER APPLIES ONLY TO FACILITIES WITHIN PUBLIC STREETS OR PUBLIC UTILITY EASEMENTS. ALL OTHER WATER, RECLAIMED WATER AND WASTEWATER FACILITIES INSIDE PRIVATE PROPERTY ARE UNDER THE JURISDICTION OF BUILDING INSPECTION.

21. ALL WATER, RECLAIMED WATER AND WASTEWATER MAINS SHALL BE INSTALLED IN ACCORDANCE WITH THE SEPARATION DISTANCES INDICATED IN CHAPTER 290 - DRINKING WATER STANDARDS, CHAPTER 210 - USE OF RECLAIMED WATER AND CHAPTER 217 - DESIGN CRITERIA FOR SEWERAGE SYSTEMS, OF TCEQ RULES.

22. CONTRACTOR'S PERSONNEL THAT PERFORM BUTT FUSION AND ELECTROFUSIONON ON OR TO HDPE PIPE AND FITTINGS MUST HAVE CURRENT QUALIFICATION TRAINING CERTIFICATE ISSUED BY MCELROY OR COMPARABLE TRAINING PROGRAM.

23. SHOP DRAWINGS SHALL BE SUBMITTED FOR AW APPROVAL FOR LARGE DIAMETER PRE-CAST MANHOLES, JUNCTION BOXES, WET WELLS, AND SIMILAR STRUCTURES. THE SHOP DRAWINGS SHALL INCLUDE FLOWLINE ELEVATIONS OF ALL INCOMING AND OUTGOING PIPES, ELEVATION OF TRANSITION FROM LARGE DIAMETER SECTIONS TO 48" ID SECTION, TOP OF MANHOLE ELEVATION, SURROUNDING GROUND ELEVATION, AS WELL AS SPECIAL CONSTRUCTION CONSIDERATIONS THAT ARE SPECIFIED IN THE CONTRACT DRAWINGS.

24. VALVE STEM EXTENSIONS SHALL CONSIST OF A SINGLE PIECE OF IRON ROD OF THE REQUIRED LENGTH WITH A SOCKET ON ONE END AND NUT ON THE OTHER.

25. ASBESTOS CONCRETE PIPE (AC PIPE) HAS BEEN INSTALLED IN THE PAST AS PART OF AUSTIN WATER'S WATER DISTRIBUTION AND WASTEWATER COLLECTION SYSTEMS. AUSTIN WATER'S INFRASTRUCTURE INCLUDES AC PIPE THAT IS CURRENTLY IN SERVICE AS WELL AS AC PIPE THAT HAS BEEN ABANDONED AND IS NO LONGER IN SERVICE. RECORD INFORMATION MAY NOT BE COMPLETE FOR THE PROJECT. CONTRACTORS AND SUBCONTRACTORS MUST BE ALERT TO THE POSSIBLE PRESENCE OF AC PIPE WITHIN THE LIMITS OF THE PROJECT AND BE KNOWLEDGEABLE OF HOW TO IDENTIFY IT. DISTURBANCE, REMOVAL OR CUTTING OF ASBESTOS CONTAINING PIPE IS TO BE CONDUCTED IN ACCORDANCE WITH THE REQUIREMENTS OF TEXAS ADMINISTRATIVE CODE 25, SECTION 15, ARTICLE 4477-3A AND 29 CFR 1926.1101. CONTACT THE CITY OF AUSTIN ASBESTOS MANAGER AT 512-974-7154 THIRTY (30) DAYS PRIOR TO THE PLANNED DISTURBANCE OF THE AC PIPE. ONLY STATE LICENSED PERSONNEL ARE PERMITTED TO DISTURB, REMOVE, TRANSPORT AND DISPOSE OF AC PIPE.

AWWA D100 - 1984

CONTRACT NO. - 57579
YEAR COMPLETED - 1987
NOMINAL DIAMETER - 74'-0"
NOMINAL HEIGHT - 103'-0" L.C.L.
NOMINAL CAPACITY - 1.000M
MATERIAL - A283C - A36
HEAT TREATMENT - N.A.

FABRICATED BY: PITT-DES MOINES, INC.

ERECTED BY: HYDROSTORAGE, INC.

1 / G-1 FOUR POINTS EST NAME PLATE INFORMATION
N.T.S

Freese and Nichols, Inc.
Texas Registered Engineering Firm F-2144
STATE OF TEXAS
CHARLES A. KUCHERKA
98388
LICENSED PROFESSIONAL ENGINEER
9/27/16

FREESE AND NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
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Fax - (512) 617-3101

THE CITY OF AUSTIN
FOUR POINTS ELEVATED RESERVOIR IMPROVEMENTS
GENERAL
GENERAL NOTES

NO.	ISSUE	BY	DATE

F&N JOB NO. AU116177
DATE 9/27/2016
DESIGNED REG
DRAWN NC
REVISED
CHECKED CAK
FILE NAME GN-ALL-NOTES01.dwg

VERIFY SCALE 0 1 Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.

SHEET G-1
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Date: Sep 27, 2016 - 11:07am User: 02515 File: N:\STANDARD\GN-ALL-NOTES01.dwg

20" INLET/OUTLET RISER

EXIST. 6" DRAIN LINE

EXIST. FIRST FLOOR LADDER TO BE REPLACED. REF: STRUCTURAL

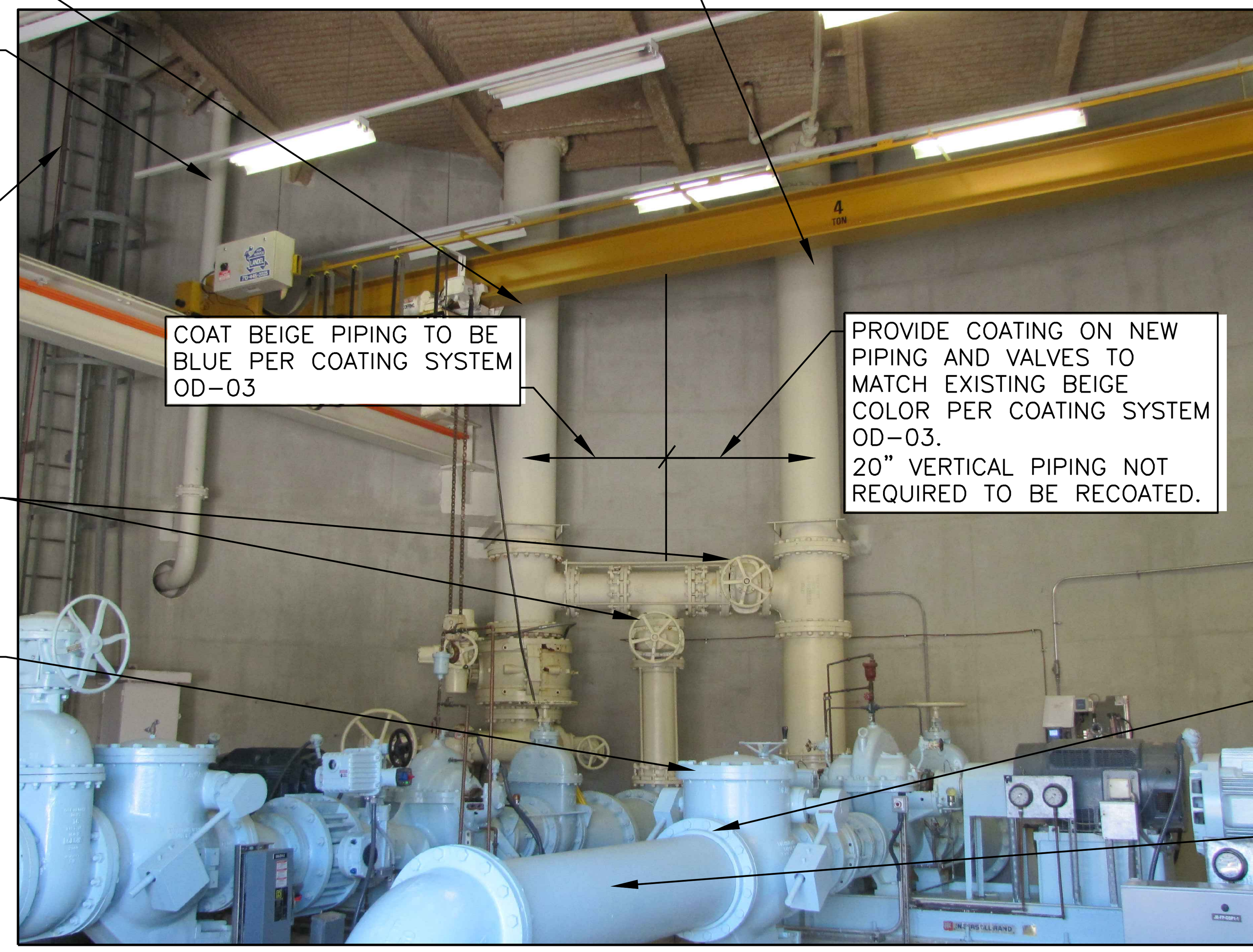
REPLACE EXISTING 12" GATE VALVES (2-PLCS) WITH NEW RESILIENT WEDGE GATE VALVES. PROVIDE CHAIN OPERATORS ON PROPOSED VALVES. INSTALL NEW GASKETS AND HARDWARE ON EXISTING 12" FLANGE COUPLING ADAPTERS DISTURBED BY REPLACING GATE VALVES. (2-PCLS)

COAT PUMPS, PIPING AND VALVES PER COATING SYSTEM OD-03

20" OVERFLOW PIPE

COAT BEIGE PIPING TO BE BLUE PER COATING SYSTEM OD-03

PROVIDE COATING ON NEW PIPING AND VALVES TO MATCH EXISTING BEIGE COLOR PER COATING SYSTEM OD-03.
20" VERTICAL PIPING NOT REQUIRED TO BE RECOATED.



INSTALL 16" SPOOL, D.I., FLG X PE AND 16" RESTRAINED FLANGE COUPLING ADAPTER

INSTALL 16" GATE VALVE WITH BEVEL GEAR HANDWHEEL OPERATOR TO MATCH ADJACENT PIPING

1 FILL AND OVERFLOW PIPING
N.T.S

ABRASIVE BLAST GRATING STRUCTURAL MEMBERS TO SSPC-SP6 AND APPLY COLD GALVANIZING.
HAND TOOL CLEAN AND APPLY GALVANIZING TO ALL CORRODED AREAS OF GRATING

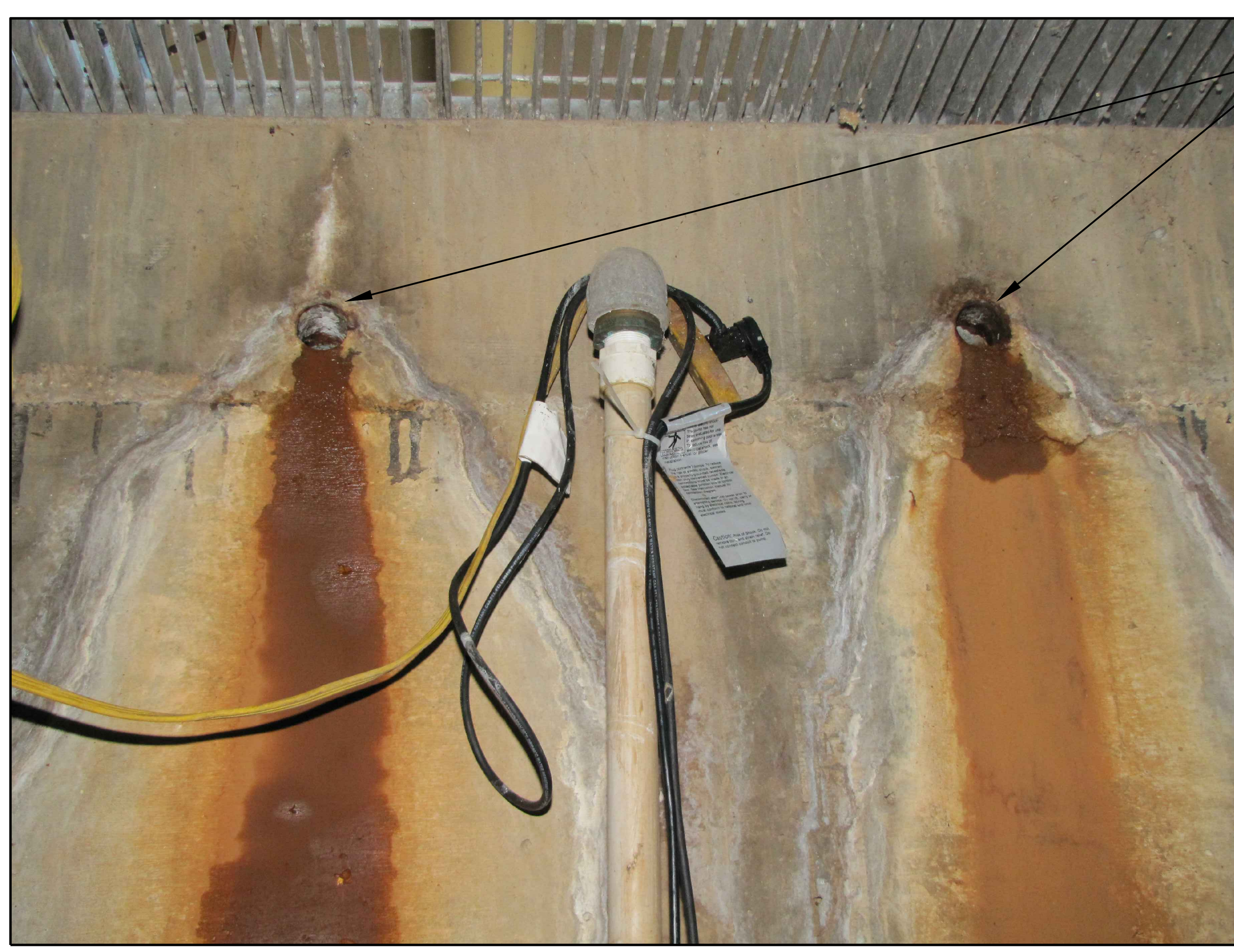
REPLACE CORRODED HARDWARE ON VALVES AND FITTINGS IN PIPE CHASE. FIELD VERIFY WITH CITY INSPECTOR

REMOVE EXISTING VALVE, INSTALL 16" SPOOL, D.I., FLG

COAT PIPING IN PIPE CHASE PER COATING SYSTEM OD-04

EXISTING 30" D.I. DISCHARGE HEADER

2 PIPE CHASE PIPING
N.T.S



CHISEL OUT CONCRETE AND CONNECT TO EXISTING DRAIN LINES WITH SCH. 80 PVC AND ROUTE TO PIPE CHASE SUMP PUMP. COLLECT ALL 3 DRAINS TO A SINGLE HORIZONTAL PIPE LAID AT A 2% MIN. SLOPE. SUPPORT PIPING WITH STAINLESS STEEL PIPE SUPPORTS AND HARDWARE AT A 4' MAX. SPACING

3 PUMP SEAL DRAINS
N.T.S

REPLACING EXISTING COPPER LINE, TAP AND VALVE. INSTALL BALL VALVE AND CORPORATION STOP.

NOTES:

1. ALL PHOTOS INCLUDED WITHIN THIS PLAN SET WERE TAKEN DURING DIFFERENT MONTHS IN 2015-2016 AND ARE A GENERAL REPRESENTATION OF THE SEVERITY OF CORROSION AND DAMAGE OBSERVED. ACTUAL CONDITIONS MAY BE DIFFERENT AT THE TIME OF CONSTRUCTION AND THE PHOTOS INCLUDED ARE NOT INTENDED TO IDENTIFY ALL AREAS OF CORROSION AND/OR DAMAGES THAT ARE IN NEED OR REPAIR. CONTRACTOR SHALL VERIFY ALL CONDITIONS AND MAKE ADJUSTMENTS AS REQUIRED.
2. WORK INDICATED IN THE PHOTOS IS NOT ALL INCLUSIVE OF THE WORK TO BE COMPLETED WITHIN THIS PROJECT.

Freese and Nichols, Inc.
Texas Registered Engineering Firm F-2144
STATE OF TEXAS
CHARLES A. KUCHERKA
98388
LICENSED PROFESSIONAL ENGINEER
9/27/16

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THE CITY OF AUSTIN

FOUR POINTS ELEVATED RESERVOIR IMPROVEMENTS

1ST FLOOR INTERIOR PEDESTAL IMPROVEMENTS

NO.	ISSUE	BY	DATE

F&N JOB NO. AU116177
DATE 9/27/2016
DESIGNED REM
DRAWN JD
REVISED .
CHECKED .
FILE NAME WTU-4P-EST-DT01.dwg

VERIFY SCALE
0 1
Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.

SHEET G-2
SEQ. .

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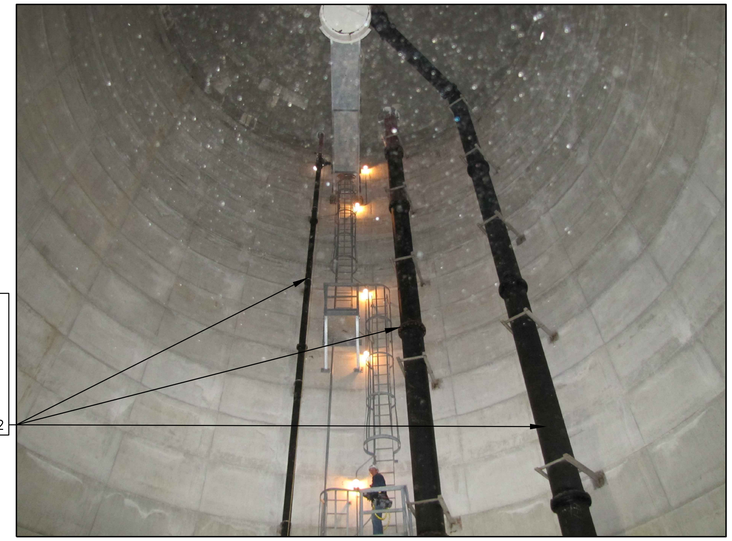
05/11/2012 1:16:33 P.M. LTS: 1 PSLTS: 1

1 PEDESTAL 2ND FLOOR
N.T.S



2 PEDESTAL PIPING
N.T.S

3 PEDESTAL UPPER PLATFORM/DRY WELL
N.T.S

4 TANK BOWL BOTTOM ACCESS HATCH
N.T.S

NOTES:

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2. WORK INDICATED IN THE PHOTOS IS NOT ALL INCLUSIVE OF THE WORK TO BE COMPLETED WITHIN THIS PROJECT.

Freese and Nichols, Inc.
Texas Registered Engineering Firm F-2144
STATE OF TEXAS
CHARLES A. KUCHERA
98388
LICENSED
PROFESSIONAL ENGINEER
9/27/16
FREESE NICHOLS
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THE CITY OF AUSTIN
FOUR POINTS ELEVATED RESERVOIR IMPROVEMENTS
INTERIOR PEDESTAL IMPROVEMENTS

FAN JOB NO.	AU116177
DATE	9/27/2016
DESIGNED	REM
DRAWN	JD
REVISED	
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FILE NAME	WTU-4P-EST-DT01.dwg

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SHEET G-3
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ALL EXISTING PLATFORMS AND LADDERS TO BE REMOVED AND REPLACED. REFER TO STRUCTURAL

1 GENERAL INTERIOR CONDITION 1
N.T.S

ALL EXISTING PLATFORMS AND LADDERS TO BE REMOVED AND REPLACED. REFER TO STRUCTURAL

2 GENERAL INTERIOR CONDITION 2
N.T.S

EXISTING DRAIN LINE TO BE REMOVED. REFER TO STRUCTURAL FOR TANK INTERIOR IMPROVEMENTS

EXISTING DRAIN PIPE, REFER TO STRUCTURAL FOR IMPROVEMENTS

3 GENERAL INTERIOR CONDITION 3
N.T.S

REFER TO STRUCTURAL FOR IMPROVEMENTS TO HATCHES, VENT, HANDRAIL AND OTHER APPURTENANCES

4 TOP OF TANK
N.T.S

NOTES:

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THE CITY OF AUSTIN

FOUR POINTS ELEVATED RESERVOIR IMPROVEMENTS

TANK GENERAL CONDITION PHOTOS

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SHEET G-4
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INSTALL SCH 80 PVC CONDUIT WITH COPPER SUPPLY LINES FROM VENTURI VAULT TO RELOCATED FLOW INDICATING TRANSMITTER INSIDE TANK PEDESTAL. REFER TO SHEET E-02-FP. SUPPLY LINES SHALL BE INSTALLED WITH POSITIVE GRADIENT FROM THE VAULT TO THE TRANSMITTER. FIELD LOCATE CORED PEDESTAL PENETRATION. FILL GAP BETWEEN PIPING AND PEDESTAL WALL WITH NON-SHRINK GROUT.

1 VENTURI METER
N.T.S

INSTALL PVC UNION AT TOP OF PIPING AND CENTER PUMP IN SUMP

REMOVE EXISTING LADDER

REPLACE ALL EXISTING COPPER PIPING AND INSTRUMENTATION VALVES WITH BALL VALVES

2 VAULT LADDER
N.T.S

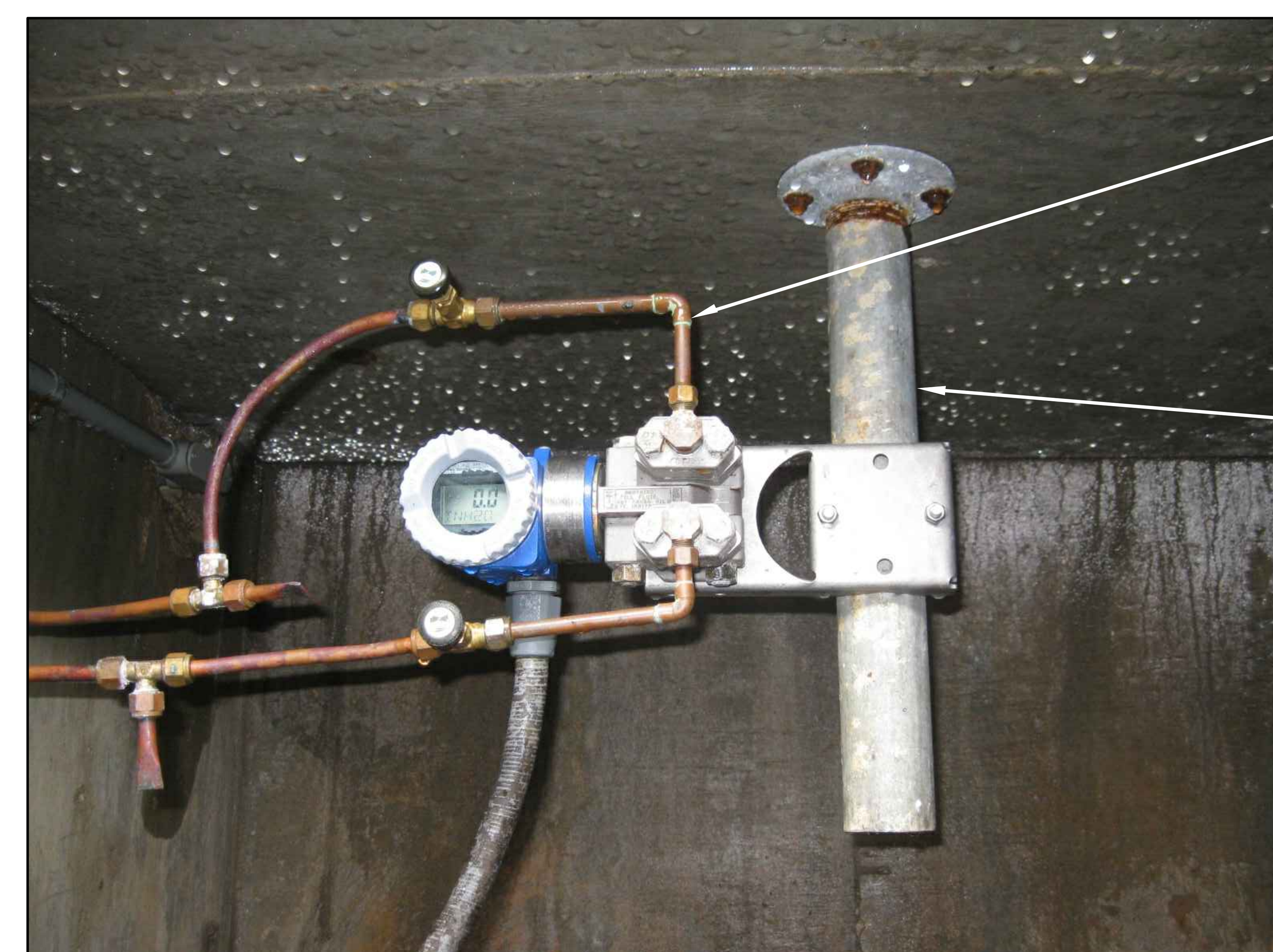
NOTE:

CONTRACTOR SHALL GROUT BOTTOM OF VENTURI VAULT TO DRAIN TO EXISTING SUMP. 1% MINIMUM SLOPE.

REPLACE EXISTING 30" COUPLING

COAT VENTURI METER, THRUST RESTRAINTS AND PIPING PER COATING SYSTEM OD-05. REPLACE ALL CONNECTION HARDWARE AND GASKETS

3 VENTURI METER
N.T.S



RELOCATE VENTURI INSTRUMENTATION TO INTERIOR TANK PEDESTAL. INSTALL NEW COPPER PIPING, VALVES AND APPURTENANCES. REFER TO SHEET E-02-FP

REMOVE SUPPORT

4 VENTURI METER INSTRUMENTATION
N.T.S

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THE CITY OF AUSTIN
FOUR POINTS ELEVATED RESERVOIR IMPROVEMENTS
VENTURI METER IMPROVEMENTS

NO.	ISSUE	BY	DATE

F&N JOB NO. AU116177
DATE 9/27/2016
DESIGNED REM
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SHEET G-5
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1 EXTERIOR DRAIN IMPROVEMENTS
N.T.S

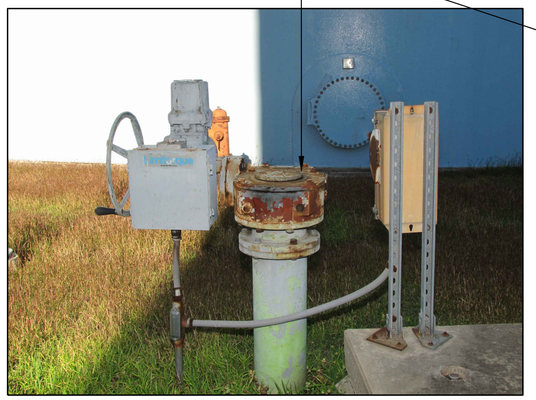
REMOVE EXISTING PIPING, INSTALL:
1 – 6" FULL PENETRATION BUTT WELDED 304 STAINLESS STEEL FLANGE
1 – 6" 90–DEGREE BEND, 304 S.S., FLG.
1 – 6" SPOOL, 304 S.S., FLG. (FIELD VERIFY SPOOL LENGTH WITH INSPECTOR)
1 – 6" 304 S.S. CAMLOCK COUPLER WITH CAP.

2 EXTERIOR – FILL AND OVERFLOW PIPING
N.T.S

REFER TO STRUCTURAL FOR MODIFICATIONS TO OVERFLOW AND DRAIN PIPE. COAT PER COATING SYSTEM OD–01

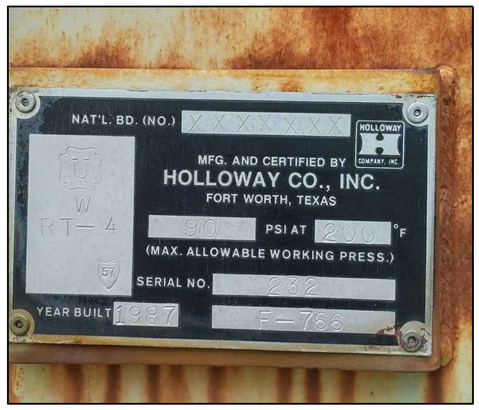
REMOVE INSULATION AND COAT PER COATING SYSTEM OD–01. DO NOT REPLACE INSULATION.

EXTEND EXIST. DRAINS, TO HEAD WALL WITH LIKE MATERIALS. FIELD LOCATE BURIAL AND ROUTING



3 MISCELLANEOUS ABOVE GROUND APPURTENANCES
N.T.S

COAT EXISTING FIRE HYDRANTS (3 EACH) AND EXISTING VALVE OPERATOR PER COATING SYSTEM OD–06



EXISTING 20,000 GALLON HYDROPNEUMATIC TANK. CONTRACTOR SHALL COMPLETELY REMOVE EXISTING FOUNDATIONS AND ABANDON EXISTING PIPING AND CONDUITS BY PLUGGING

4 HYDROPNEUMATIC TANK
N.T.S

COAT VALVES IN VAULTS PER COATING SYSTEM OD–05. 4 PLCS

5 MISCELLANEOUS VALVE REHABILITATION
N.T.S

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THE CITY OF AUSTIN
FOUR POINTS ELEVATED RESERVOIR IMPROVEMENTS
MISCELLANEOUS IMPROVEMENTS

FAN JOB NO.	DATE	BY	ISSUE	NO.
AU116177				
DATE 9/27/2016				
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LEGEND

- FIRE HYDRANT
- WATER VALVE
- WATER METER
- WATER MANHOLE
- SANITARY MANHOLE
- ELECTRIC MANHOLE
- POWER POLE
- GUY ANCHOR
- LIGHT POLE
- TEL — TELEPHONE PEDESTAL
- SIGN
- SURVEY CONTROL POINT
- TBM — TEMPORARY BENCHMARK
- 1/2"ø — IRON ROD FOUND
- 1086 — EXISTING CONTOUR
- —E— EXISTING UNDERGROUND ELECTRIC
- —TP— PROPOSED TREE PROTECTION PER COA DETAIL 610S-1
- —SF— PROPOSED SILT FENCE PER COA DETAIL 642S-1
- —LOC— LIMIT OF CONSTRUCTION
- X1086.50 PROPOSED SPOT ELEVATION

SURVEY NOTES

1. BEARINGS ARE REFERENCED TO THE TEXAS STATE PLANE COORDINATE SYSTEM OF 1983 (NAD83), CENTRAL ZONE, BASED ON GPS OBSERVATIONS. DISTANCES ARE SURFACE VALUES AND MAY BE CONVERTED TO GRID BY APPLYING THE COMBINED ADJUSTMENT FACTOR 0.9999381011.
2. ELEVATIONS ARE BASED ON CITY OF AUSTIN GPS MONUMENT SYSTEM NO. D-34-3001 AND D-34-3002.
3. TEMPORARY BENCHMARK: COTTON SPINDLE SET IN ASPHALT DRIVEWAY OUTSIDE CHAIN LINK FENCE GATE, EL.1091.65'.
4. NO PORTION OF SUBJECT TRACT IS LOCATED WITHIN FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) FLOODPLAIN, PER FLOOD INSURANCE RATE MAP (FIRM) PANEL 48453C0240J, EFFECTIVE JANUARY 6, 2016.
5. CONTOUR LINE OUTSIDE FENCE AREA IS BASED ON CITY OF AUSTIN GIS 2 FOOT CONTOUR MAP.

0 10 20 40 FT

NLH ENTERPISES
6612 SITIO DEL RIO
LOT 4 BLK A TWENTY-TWO TWENTY-TWO BUSINESS PARK
2.4 AC.
DOC. 2006150985
O.P.R.T.C.

KCK VENTURES
6606 SITIO DEL RIO BLVD
LOT 5 BLK A TWENTY-TWO TWENTY-TWO BUSINESS PARK
1.85 AC.
DOC. 2012167265
O.P.R.T.C.

CONTRACTOR SHALL REMOVE EXIST. BRUSH/VEGETATION TO PROVIDE 3' CLEARANCE ALONG NORTH SIDE OF ASPHALT DRIVE. SUBSIDIARY TO OTHER ITEM. NO ADDITIONAL PAY.

ACCESS DRIVEWAY

EX. CONC. DRIVEWAY

(S 60° 32' 40" E 229.75')
(28.73')
(201.02')
PROPERTY BOUNDARY

SEAL COAT APPROX. 900 S.Y. OF EXISTING ASPHALT DRIVEWAY PER SPEC 312S

EXIST. CURB & GUTTER SEE NOTE ON THIS SHEET

EXIST. GATE TO BE REMOVED & REPLACED

REMOVE EXIST. BARBED WIRE FENCE ALONG ENTRY DRIVEWAY. SUBSIDIARY TO OTHER ITEM. NO ADDITIONAL PAY.

TBM

GATE

EX. 36" D.I. WL

EX. 2" ELEC. CONDUIT

EX. 2" ARV

EX. ELEC. TRANSFORMER

EX. ELEC. RACK

AC PAD

EX. 30" D.I. WL

REFER TO SHEET C3 FOR FENCE REPAIR
CHAIN LINK SECURITY FENCE W/ 1.5' WIDE CONCRETE MOW STRIP

C= S 87° 26' 39" E 390.23'
R= 431.26'
A= 404.95'
PROPERTY BOUNDARY

61.73'

STABILIZED CONSTRUCTION ENTRANCE

CONTRACTOR TO REGRADE AREA AROUND TANK FOUNDATION TO PROVIDE MIN. 6" CLEARANCE FROM THE GROUND. GRADE THE AREA TO PROVIDE POSITIVE DRAINAGE

HIGH POINT X1085.66

CONTRACTOR TO REMOVE AND DISPOSE OF SEDIMENT AROUND THE PARKING AREA AT APPROVED LOCATION

X1085.55

X1085.44

CONTRACTOR'S STAGING AREA

EXIST. 7 MILLION GALLON GROUND STORAGE TANK

EXIST. 1 MG ELEVATED STORAGE TANK (TO BE REHABILITATED)

SEE SHT. C3 FOR DETAILS

EX. FLUSH VALVE

EX. 6" D.I.

EX. WATER VAULT

EX. VENTURI VAULT

EX. WATER VAULT

EX. WATER VAULT

EX. 36" D.I.

EX. 24" D.I.

EX. 20" D.I.

EX. 12" W.L.

EXIST. PRESSURE TANK TO BE REMOVED AND SCRAPPED SEE SHEET C3

PRESSURE TANK

ADJUST EXIST. VALVE BOXES TO ACCOMMODATE EXISTING AND PROPOSED GRADE, REPLACE BROKEN VALVE BOXES LIDS AND EXTENSIONS AS NECESSARY AND INSTALL CONCRETE PADS PER DETAIL 511-13C (15 TYP.)

X1085.33

X1085.22

X1085.11

X1085.02

EXIST. CONC. FLUME TO BE RECONSTRUCTED

CITY OF AUSTIN
6600 1/2 SITIO DEL RIO BLVD
ABS 112 SUR 802 BELL WM
3.78 AC.
VOL. 10105 PG. 253
O.P.R.T.C.

EXIST. DETENTION POND TO BE REGRADED REFER TO SHT. C2

EXIST. OVERFLOW FLUME

CONTROL FLUME

EXIST. WOOD WALKWAY TO BE REMOVED AND REPLACED REFER TO SHT. C3

PROP. PRESSURE RELIEF VALVE VAULT SEE SHT. C3 FOR DETAIL

BURIED CABLE TBIT TOC

UTILITY VAULT

CHAIN LINK FENCE W/CONC. MOWING STRIP
REFER TO SHEET C3 FOR FENCE REPAIR

PROPERTY BOUNDARY

(S 29° 27' 20" W 315.00')

SITIO DEL RIO BOULEVARD (70' ROW)

NOTE(S)

CONTRACTOR SHALL REMOVE ALL VEGETATION AND CLEAN CONC. CURB & GUTTER EXPANSION JOINT AROUND THE TANK DRIVEWAY TO SITIO DEL RIO BLVD. CONTRACTOR SHALL USE BACKER ROD AND SIKADUR15 NS OR APPROVED EQUAL. THIS WORK SHALL BE CONSIDERED SUBSIDIARY TO OTHER ITEMS IN THE PROJECT.

N 24° 20' 39" W 102.83'

4 POINTS MOB PARTNERS, LLC
6611 RIVER PLACE BLVD

N 60° 40' 04" W 690.18'

N 60° 34' 30" W 97.16'

PROPERTY BOUNDARY

(228.73')

10' C.O.A. ELECTRIC AND TELEPHONE EASEMENT
DOC. 20100102, O.P.R.T.C.

(N 60° 32' 40" W 429.75')

(201.02')

LEANDER ISD TRUSTEE
6500 SITIO DEL RIO BLVD
LOT 2 BLK A AUSTIN CHRISTIAN FELLOWSHIP
PHS 2 SUBD
14.994 ACRES
DOC. 200100102
O.P.R.T.C.

8-5-2016
STATE OF TEXAS
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AUSTIN, TEXAS 78704 (512) 442-0330
TBPE FIRM NO. F-755
TBPLS FIRM NO. 10038500

THE CITY OF AUSTIN
FOUR POINTS ELEVATED RESERVOIR IMPROVEMENTS

SITE LAYOUT, EROSION SEDIMENTATION CONTROL & TREE PROTECTION PLAN

NO.	ISSUE	BY	DATE

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DATE
DESIGNED
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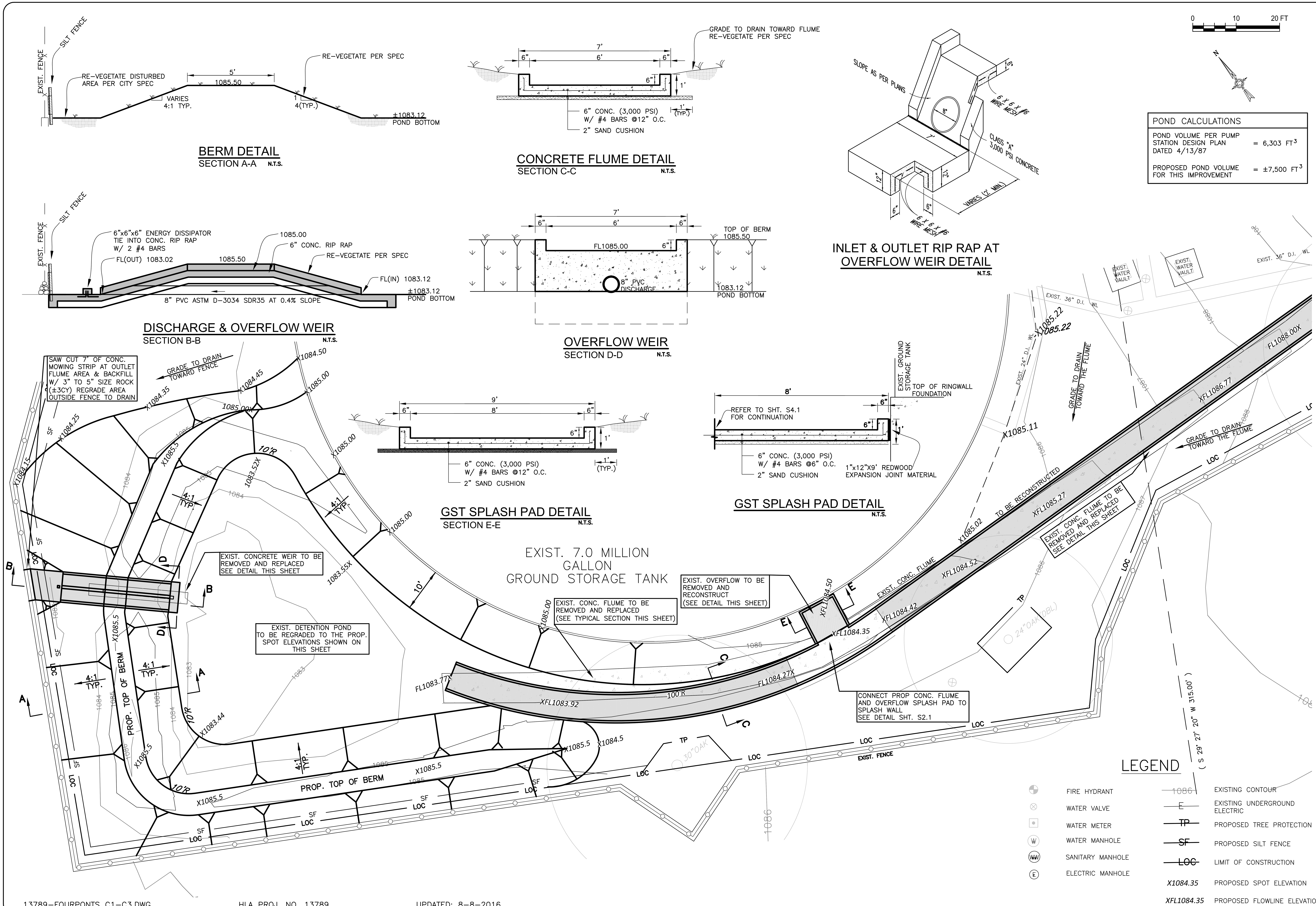
FILE NAME

SHEET C1
SEQ.

13789-FOURPOINTS C1-C3.DWG HLA PROJ. NO. 13789 UPDATED: 8-25-2016



13789–FOURPONTS C1–C3.DWG
HLA PROJ. NO. 13789
UPDATED: 8–8–2016

8–8–2016
STATE OF TEXAS
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TBPE FIRM NO. F–755
TBPLS FIRM NO. 10058500

THE CITY OF AUSTIN
FOUR POINTS ELEVATED RESERVOIR IMPROVEMENTS

OVERFLOW FLUME & POND LAYOUT PLAN

F&N JOB NO. AU116177
DATE
DESIGNED
DRAWN
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SEQ.

EXIST. 6" D.I. WL

AC PAD

EXIST. ELEVATED WATER STORAGE TANK (TO BE REHABILITATED)

PROP. UNDERGROUND DUCT BANK (SEE SHT. E-01-FP)

EXIST. WATER VAULT

EXIST. 20" D.I. WL

EXIST. CONC. FLUME TO BE REMOVED

EXIST. 6" D.I. WL

CONNECT TO EXIST. 12" GATE VALVE. CONTRACTOR SHALL PROPOSE APPLICABLE RESTRAINT JOINT DEVICE FOR ENGINEER/ CITY APPROVAL.

EXIST. WATER VAULT

EXIST. GRAVEL PATH

±20.7'

±17.8'

PROP. 12" D.I. WL CL350

REFER TO STRUCTURAL PLAN SHT. S2.1 FOR SPLASH WALL DETAIL

XFL1089.00

EXIST. PRESSURE TANK TO BE REMOVED & SCRAPPED

GRADE TO DRAIN TOWARD THE FLUME

EXIST. 24" D.I. WL

EXIST. 24" D.I. WL

EXIST. 24" D.I. WL

EXIST. WOOD WALKWAY TO BE REMOVED AND REPLACED REFER TO STRUCTURAL SHEET S2.1

PROP. PRESSURE RELIEF VALVE VAULT SEE DETAIL SHEET C4

12" 90° BEND MJxMJ W/ 27SF THRUST BLOCKING (L=6FT; H=4.5FT) PER COA DETAIL 510-6

EXIST. 36" D.I. WL

XFL1088.50

REMOVE EXIST. 36" BLIND FLANGE INSTALL 36"x24" REDUCER AND 24"x12" REDUCER

±7.7'

±22.5'

TP

RE-CONSTRUCT CONC. FLUME REFER TO SHT. C2

XFL1088.00

XFL1086.77

CONNECT PROP. FLUME TO PROP. OVERFLOW SPLASH PAD. REFER TO STRUCTURAL SHEET S2.1

CONTRACTOR SHALL REGRADE & REVEGETATE DISTURBED AREA AROUND THE PROP. CONC. FLUME TO PROVIDE POSITIVE DRAINAGE TO THE NEW FLUME

LOC

TP

LOC

EXISTING FENCE TO BE REPAIRED PER DETAIL SHOWN ON THIS SHEET

LOC

1092

1093

1091

1090

1089

1088

1087

30" OAK

20" OAK

20" OAK

TP

0 5 10 FT

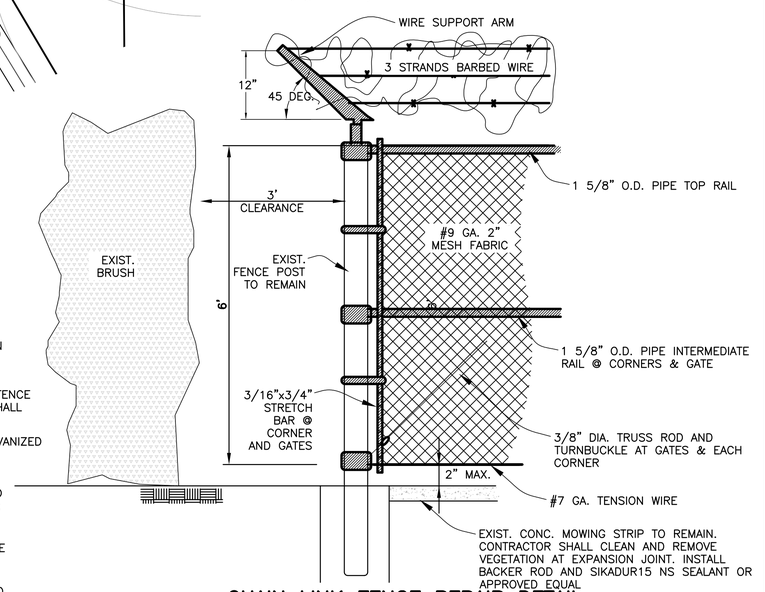
N

NOTE(S):

1. PRESSURE TANK AND CONCRETE PEDESTAL/ FOUNDATION SHALL BE REMOVED AND DISPOSED PRIOR TO THE INSTALLATION OF PRESSURE RELIEF VALVE VAULT. CONTRACTOR SHALL BACKFILL AND REGRADE TANK FOUNDATION AREA TO DRAIN. ALL EXISTING PIPING AND CONDUIT TO TANK SHALL BE CAPPED AND ABANDONED IN PLACE.
2. IF CONTRACTOR DESIRES TO RELOCATE PRESSURE TANK OFF SITE PRIOR TO CUT UP. HE NEEDS TO PROVIDE TRAFFIC CONTROL FOR LOADING AND TRANSPORTING THE TANK.
3. CONTRACTOR SHALL IDENTIFY AND REPORT TO CITY THE PRESSURE TANK BY MANUFACTURER AND SERIAL NUMBER PRIOR TO CUT UP AND SCRAP.

NOTES:

1. CONTRACTOR SHALL REMOVE EXIST. VINES & VEGETATION ADJACENT TO FENCE TO PROVIDE 3' CLEARANCE FROM FENCE (SUBSIDIARY TO FENCE REPAIR WORK)
2. EXIST. FENCE POST TO REMAIN. ALL OTHER PARTS OF FENCE SHALL BE REMOVED AND DISPOSED OF. CONTRACTOR SHALL REPAIR THE FENCE WITH NEW MATERIAL.
3. ALL PARTS AND HARDWARE SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION.
4. INSTALL NEW ENTRYWAY GATE
5. CHAIN LINK WIRE FABRIC SHALL BE SECURELY FASTENED TO ALL TERMINAL POSTS BY 3/16"x3/4" TENSION BARS WITH HEAVY GAUGE PRESSED STEEL, SPACED ±14" APART, TO THE LINE POST WITH 6 GAUGE WIRE CLIPS, SPACE 14" APART, AND TO THE TOP RAIL WITH 9 GAUGE TIE WIRES ON 24" CENTERS.
6. CONTRACTOR SHALL NOT LEAVE OPEN FENCE AREA OVERNIGHT. THE PUMP STATION SITE SHALL BE SECURED WITH PERMANENT FENCE OR TEMPORARY SECURITY FENCE AT ALL TIME.



CHAIN LINK FENCE REPAIR DETAIL

N.T.S.

13789-FOURPOINTS C1-C3.DWG HLA PROJ. NO. 13789 UPDATED: 8-5-2016

8-5-2016

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321 E. SCHMIDT BLVD., SUITE 100, AUSTIN, TX 78614
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HEJL LEE TBPE FIRM NO. 10058500
TBPLS FIRM NO. 100585500

THE CITY OF AUSTIN
FOUR POINTS ELEVATED RESERVOIR IMPROVEMENTS

PRESSURE RELIEF VALVE VAULT LAYOUT PLAN

F&N JOB NO. AU116177
DATE 8/8/2016
DESIGNED
DRAWN
REVISED
CHECKED

NO.	ISSUE	BY	DATE

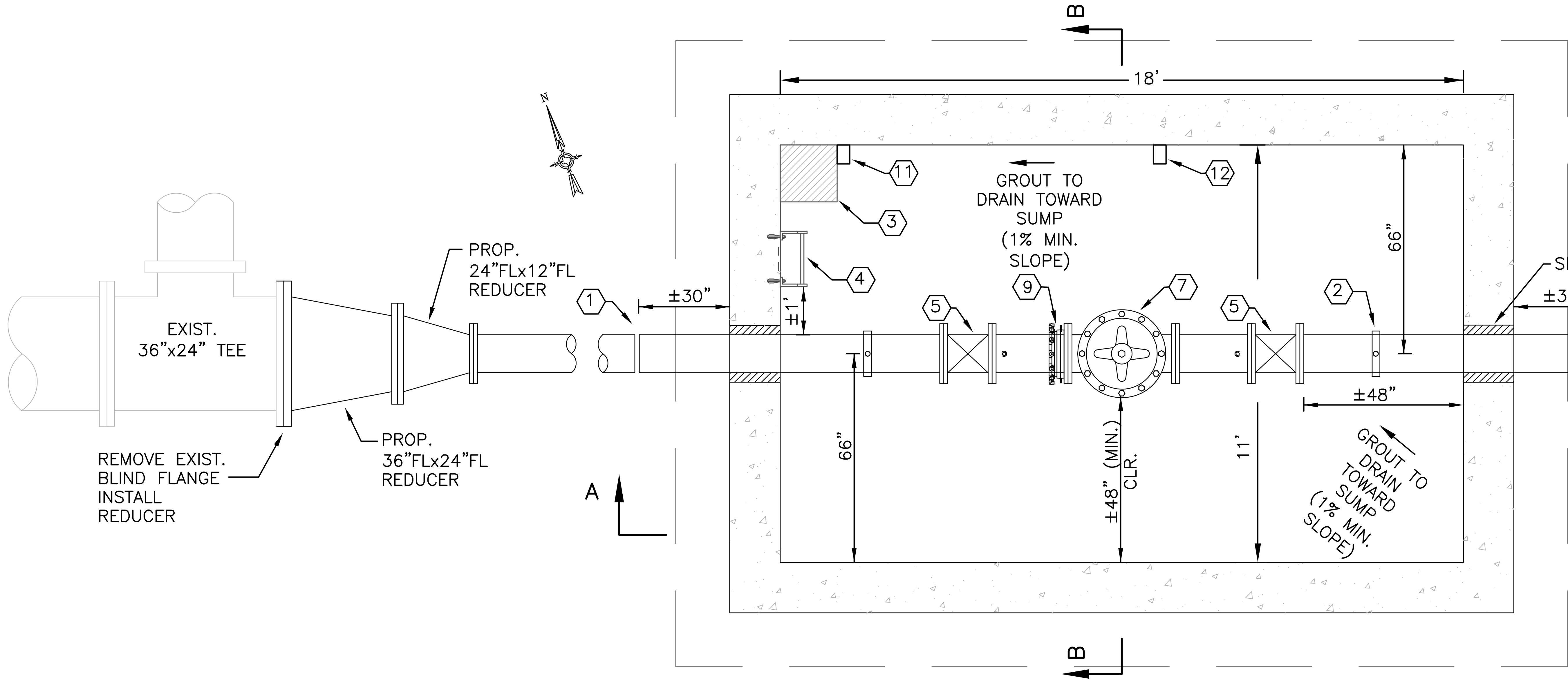
FILE NAME

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.

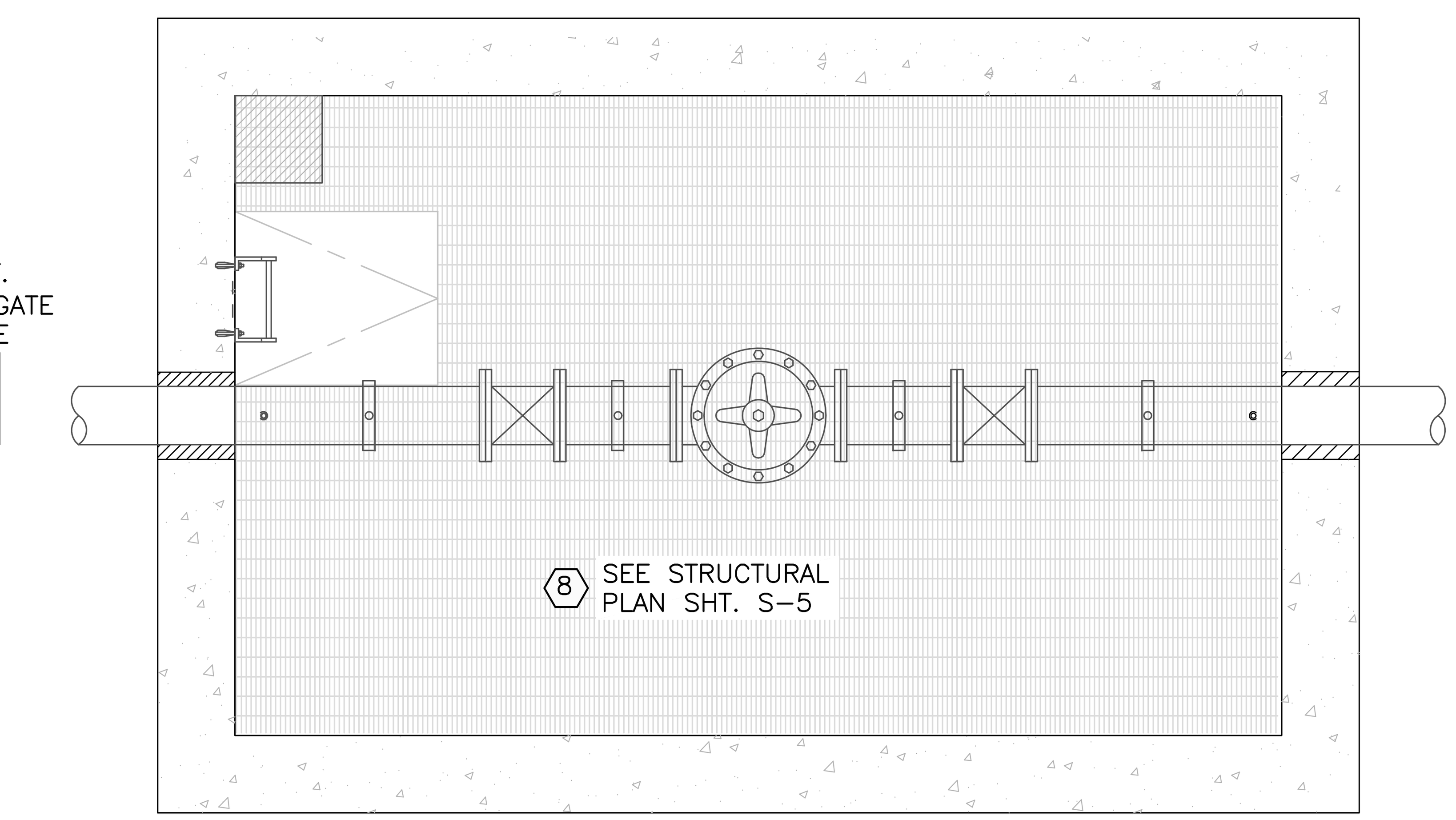
0 1"

SHEET C3

SEQ.



PLAN VIEW
1"=5'



TOP GRATE PLAN
1"=5'

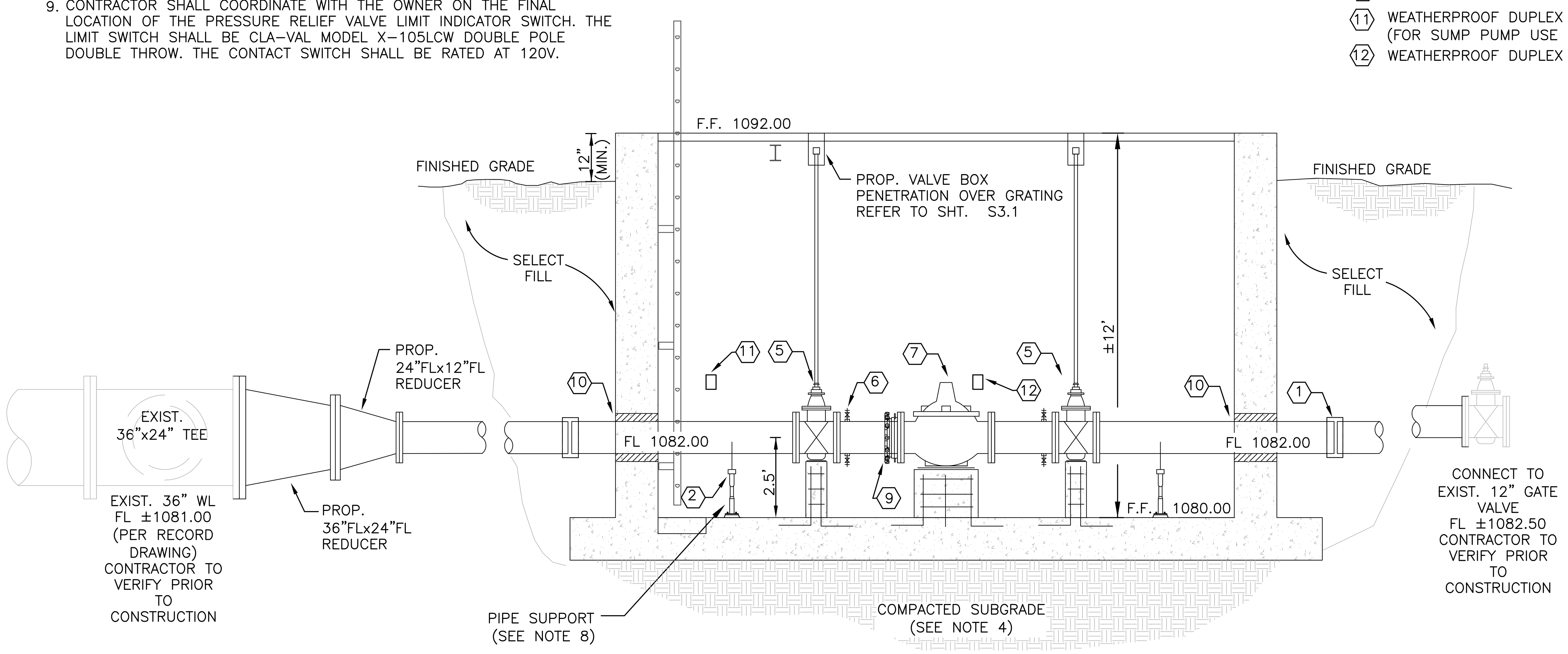
0 5 FT

NOTES

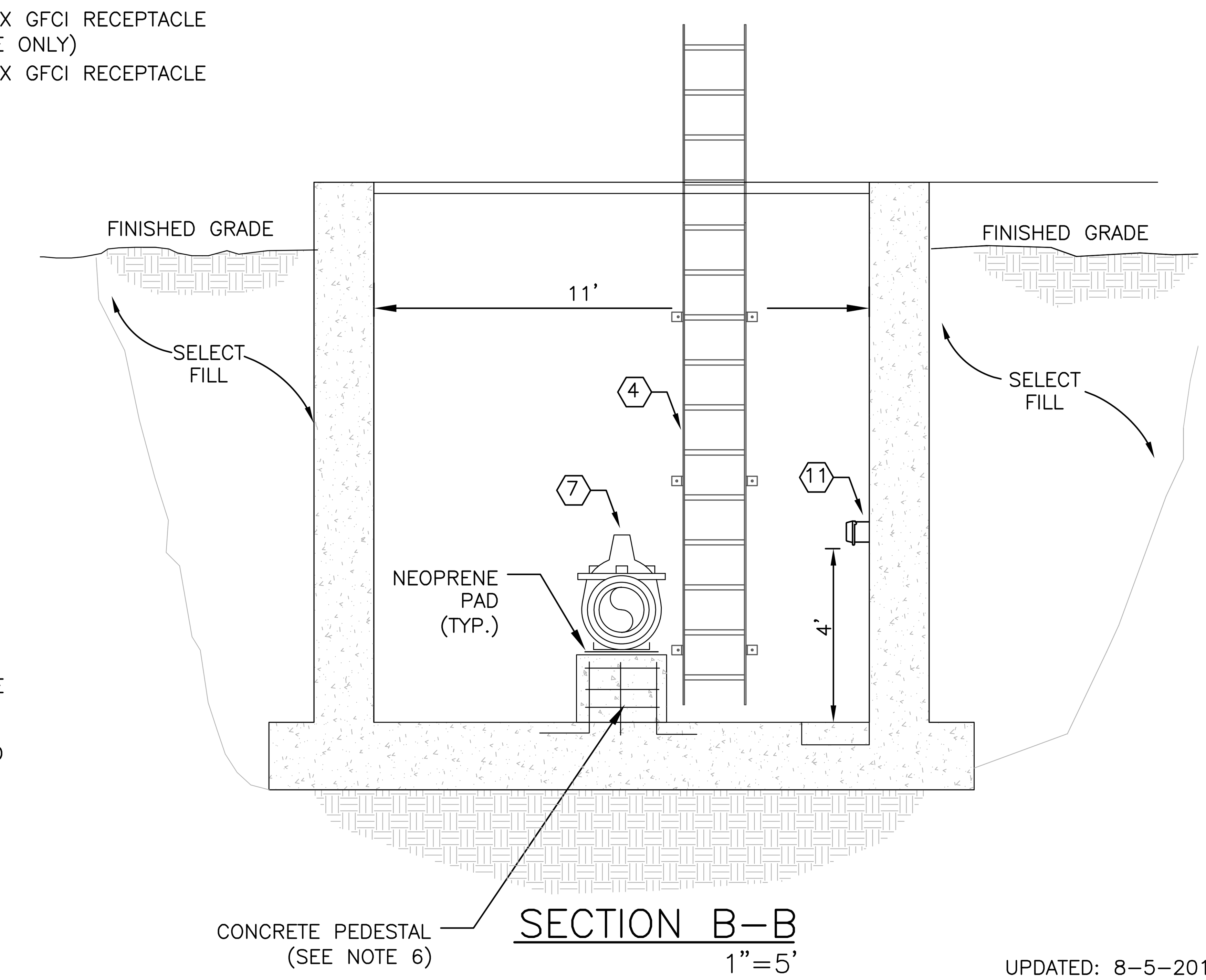
1. ALL PENETRATIONS THRU CONCRETE WALLS SHALL BE SEALED SMOOTH WITH THUNDERLINE LINK SEAL OR APPROVED EQUAL. SEE DETAIL THIS SHEET.
2. PIPING INSIDE VAULT SHALL BE D.I.P. CL 350.
3. FITTINGS TO BE RESTRAINED MECHANICAL JOINTS OUTSIDE VAULT, WITH FLANGED FITTINGS INSIDE VAULT. THE FLANGE BOLTS SHALL BE HOT DIPPED GALVANIZED 307B HEX HEAD. IN ADDITION, ALL COUPLINGS SHALL UTILIZE RESTRAINED JOINT SYSTEM.
4. CONTRACTOR SHALL REFER TO STRUCTURAL PLANS AND SECTION FOR SUBGRADE PREPARATION REQUIREMENT.
5. VAULT DIMENSIONS SHOWN ARE MINIMUM, AND MUST BE VERIFIED FOR EQUIPMENT AND PIPING MATERIALS ACTUALLY FURNISHED FOR THE PRESSURE RELIEF VALVE VAULT TO BE CONSTRUCTED.
6. CONCRETE PEDESTAL VALVE SUPPORT; HORIZONTAL CONCRETE DIMENSIONS AND ANCHOR BOLT SIZE, LENGTH AND LOCATIONS TO BE DETERMINED BY THE VALVE MANUFACTURER TO FIT THE VALVE MOUNTING BASE SUPPLIED WITH THE VALVE. VERIFY ALL DIMENSIONS WITH THE VALVE MANUFACTURER. CONCRETE REINFORCING SHALL BE NO. 5 VERTICAL REBARS AND NO. 4 HORIZONTAL HOOPS PLACED AT 8" ON-CENTERS.
7. 1" BALL VALVE SHALL BE QUARTER-TURN MUELLER PROLINE 7700NL SERIES OR APPROVED EQUAL.
8. PIPE STANCHION SADDLE SUPPORT (ANVIL INTERNATIONAL, INC., FIG. 258 AND FIG. 62, OR APPROVED EQUAL) WITH EXPANSION ANCHORS AS RECOMMENDED BY SUPPORT MANUFACTURER. PIPE SUPPORT AND MOUNTING HARDWARE SHALL BE MADE FROM STAINLESS STEEL 316.
9. CONTRACTOR SHALL COORDINATE WITH THE OWNER ON THE FINAL LOCATION OF THE PRESSURE RELIEF VALVE LIMIT INDICATOR SWITCH. THE LIMIT SWITCH SHALL BE CLA-VAL MODEL X-105LCW DOUBLE POLE DOUBLE THROW. THE CONTACT SWITCH SHALL BE RATED AT 120V.

LIST OF ITEMS

1. RESTRAINED COUPLING
2. ADJUSTABLE PIPE SUPPORT (2 TYP.)
3. 18"x18"x6" SUMP PIT
4. LADDER, SEE SHT S5.1.
5. 12" GATE VALVE (FLG x FLG) WITH GALVANIZED STEEL OPERATING NUT EXTENSION
6. 1" THREADED BRANCH WELDED ON BOSS WITH 1" BALL VALVE FOR AIR RELEASE AND DRAIN (4 TYP.)
7. 12" PRESSURE RELIEF & SURGE ANTICIPATOR VALVE (CLA-VAL MODEL 52-01) (FLG x FLG)
8. HOT DIPPED GALVANIZED STEEL GRATE (SEE STRUCTURAL SHEET)
9. RESTRAINED FLANGE COUPLING ADAPTOR
10. WALL PENETRATION, SEE STRUCTURAL SHT. S1.3.
11. WEATHERPROOF DUPLEX GFCI RECEPTACLE (FOR SUMP PUMP USE ONLY)
12. WEATHERPROOF DUPLEX GFCI RECEPTACLE



SECTION A-A
1"=5'



SECTION B-B
1"=5'

8-5-2016
STATE OF TEXAS
CHIEN Y. LEE
66022
REGISTERED
PROFESSIONAL ENGINEER

FREESE AND NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone - (512) 617-3100
Fax - (512) 617-3101
Freese and Nichols, Inc.
Texas Registered Engineering Firm F-2144

HEJL, LEE & ASSOCIATES, INC.
ENGINEERING · SURVEYING · PLANNING
321 ED SCHMIDT BLVD., SUITE 100, HUTTO, TX 78634
Ph:(512) 642-3292 FAX:(512) 642-4230
TBPE FIRM NO. F-755
TBPLS FIRM NO. 10058500

THE CITY OF AUSTIN
FOUR POINTS ELEVATED RESERVOIR IMPROVEMENTS

PRESSURE RELIEF VALVE VAULT DETAIL

F&N JOB NO.	AU116177
DATE	8/8/2016
DESIGNED	
DRAWN	
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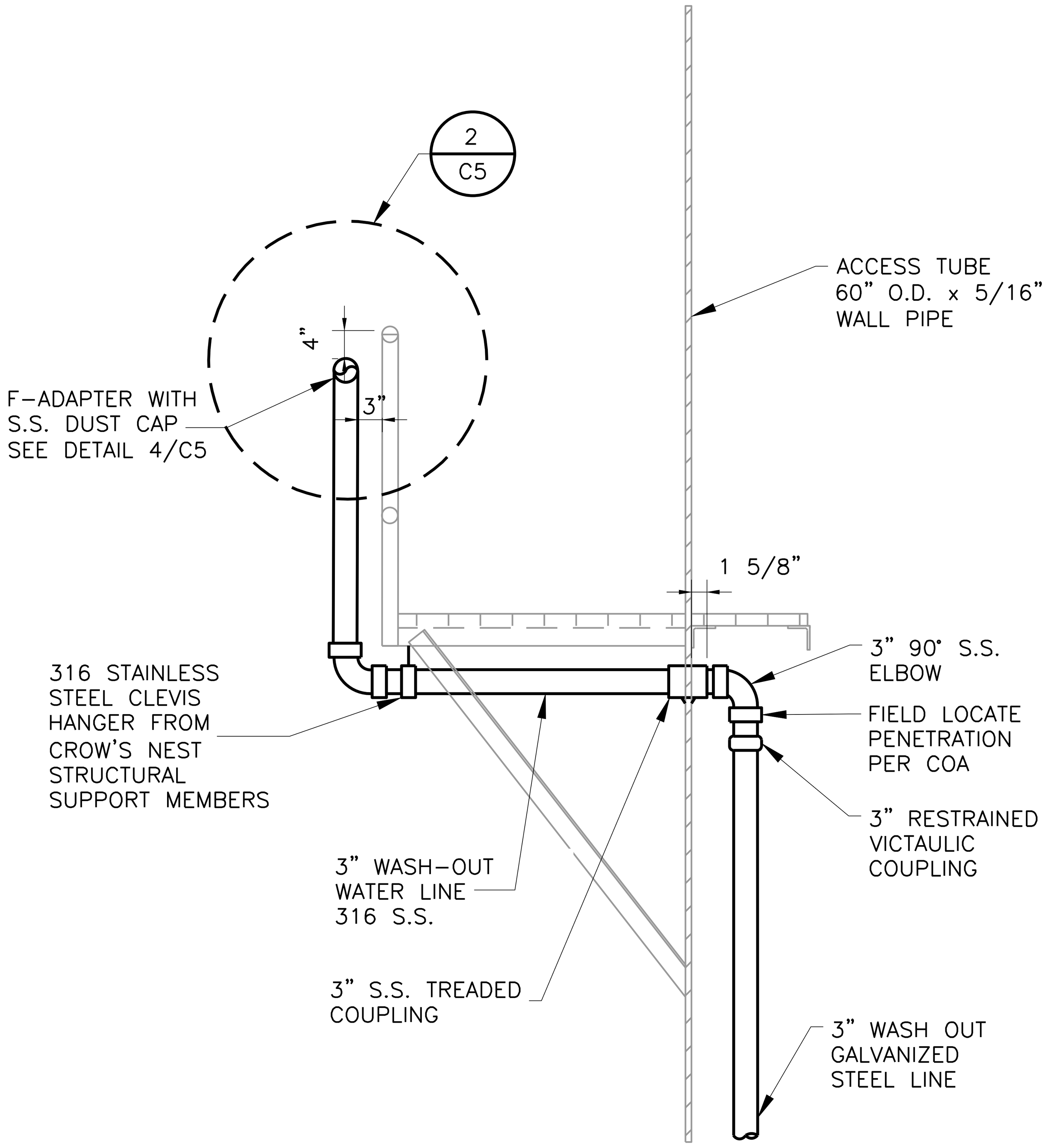
CHECKED	
FILE NAME	

NO.	ISSUE	BY	DATE

VERIFY SCALE 0 1 Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.

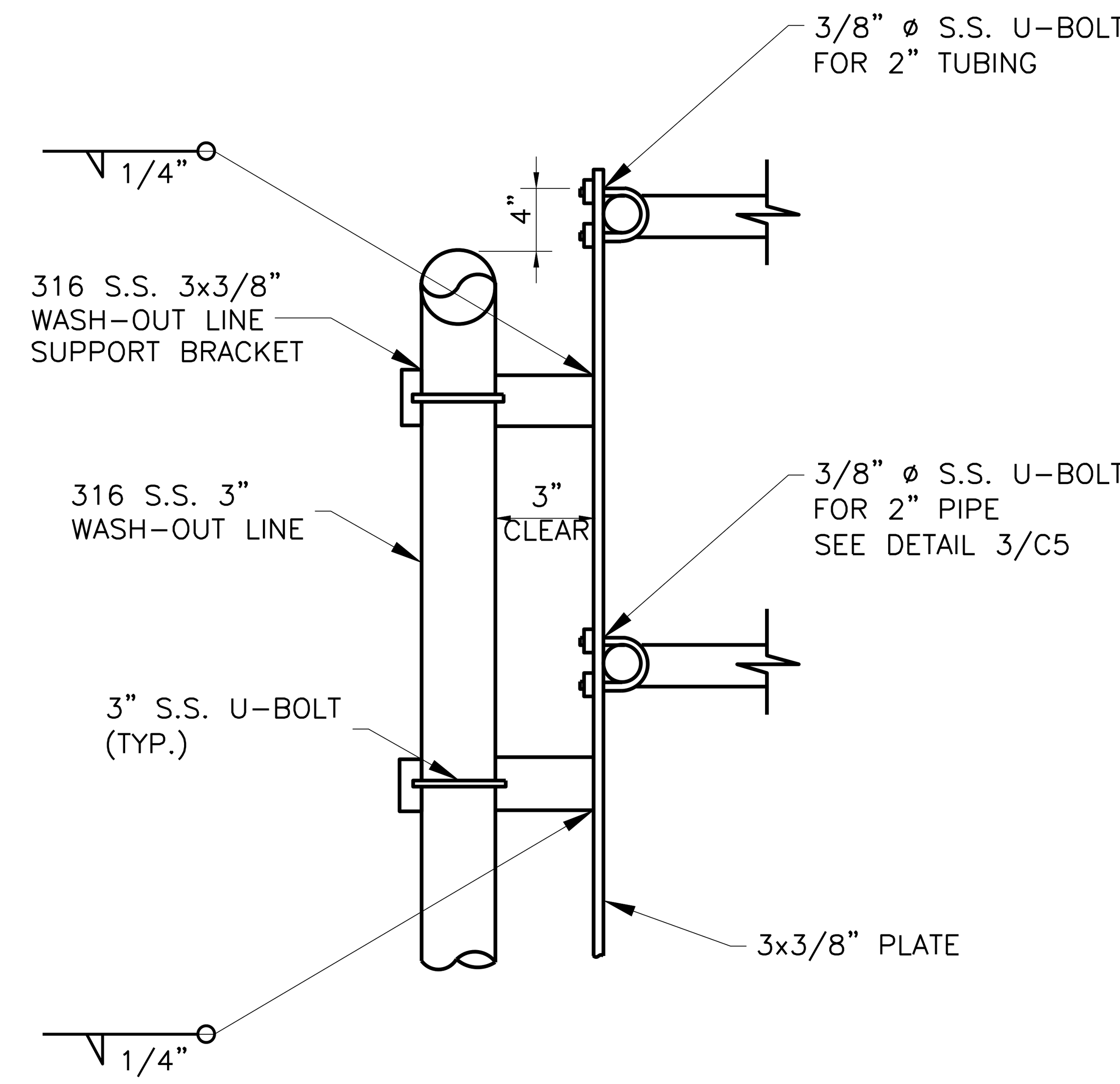
SHEET C4
SEQ.

13789-DETAIL.DWG HLA PROJ. NO. 13789 UPDATED: 8-5-2016



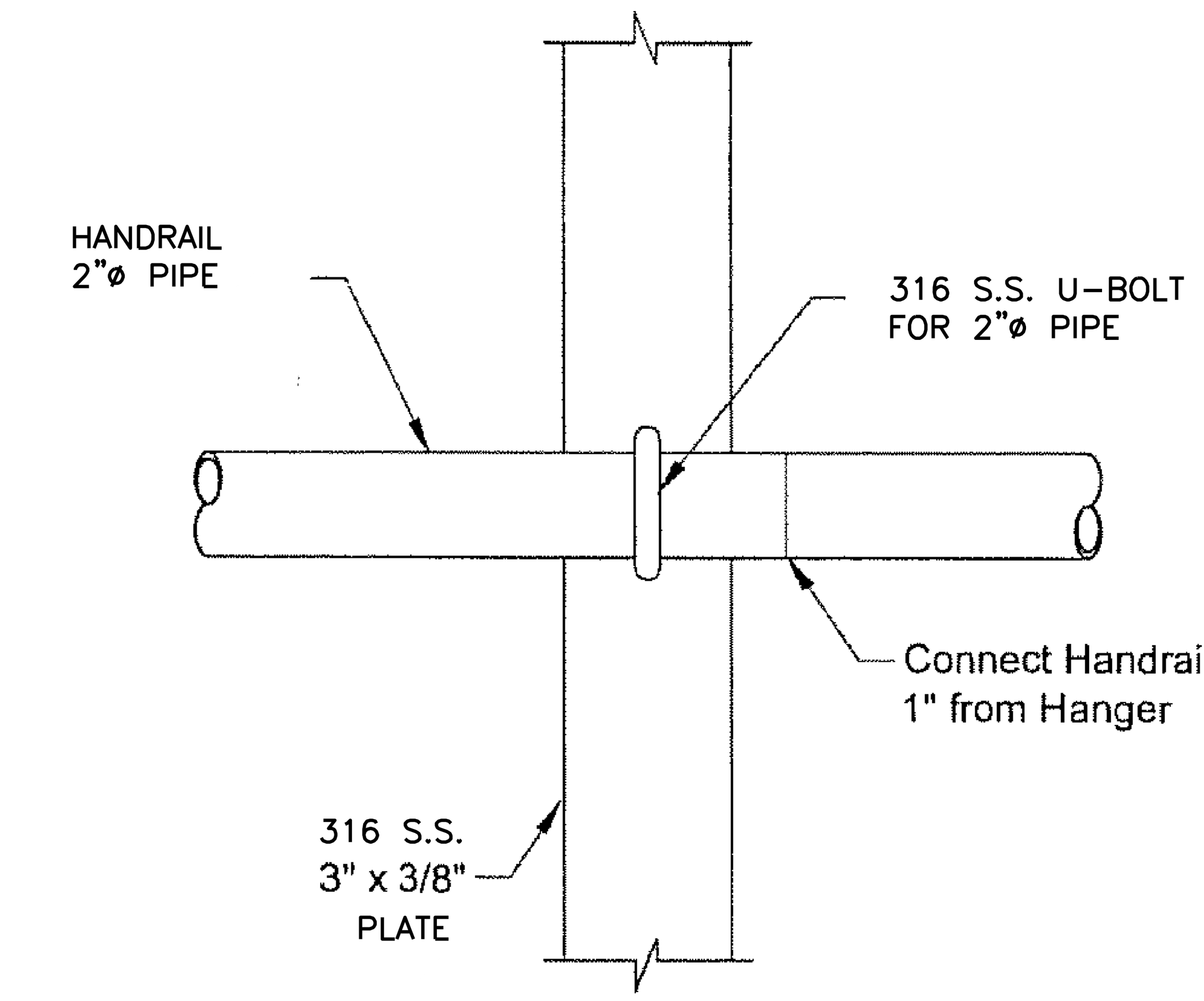
1 / C5 — WASH–OUT WATER LINE AT CROW'S NEXT

N.T.S



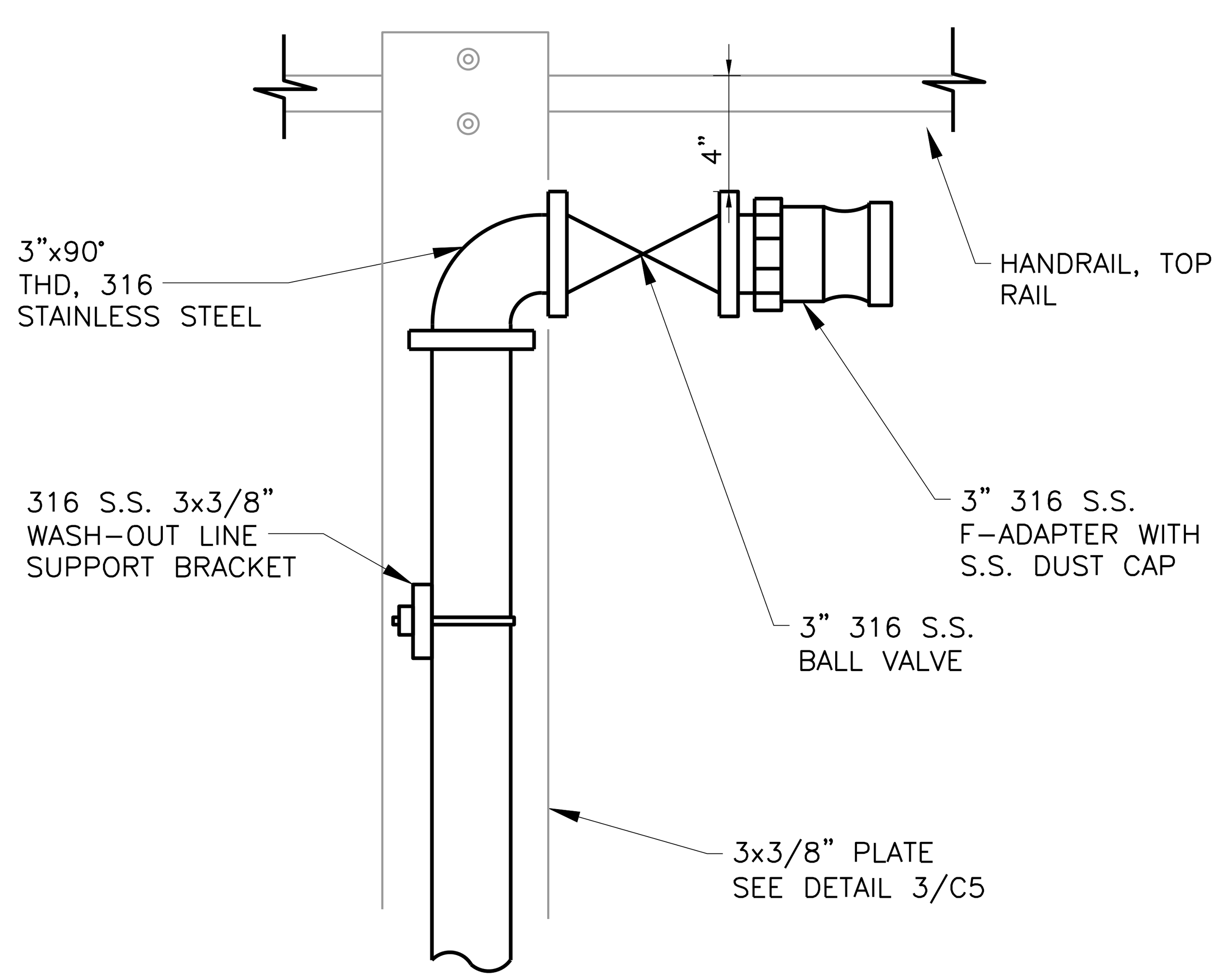
2 / C5 — WASH–OUT WATER LINE HANDRAIL CONNECTION DETAIL

N.T.S



3 / C5 — HANGER DETAIL

N.T.S



4 / C5 — F–ADAPTER DETAIL AT CROW'S NEXT

N.T.S

Freese and Nichols, Inc.
Texas Registered Engineering Firm F–2144

STATE OF TEXAS — CHARLES A. KUCHERKA — 98388 — LICENSED PROFESSIONAL ENGINEER — 9/27/16

FREESE AND NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone – (512) 617–3100
Fax – (512) 617–3101

THE CITY OF AUSTIN
FOUR POINTS ELEVATED RESERVOIR IMPROVEMENTS

WASH OUT WATER LINE DETAILS

NO.	ISSUE	BY	DATE

F&N JOB NO. AU116177
DATE 9/27/2016
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REVISED .
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FILE NAME WTU–4P–EST–C6.dwg

VERIFY SCALE 0 1 — Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.

SHEET C5
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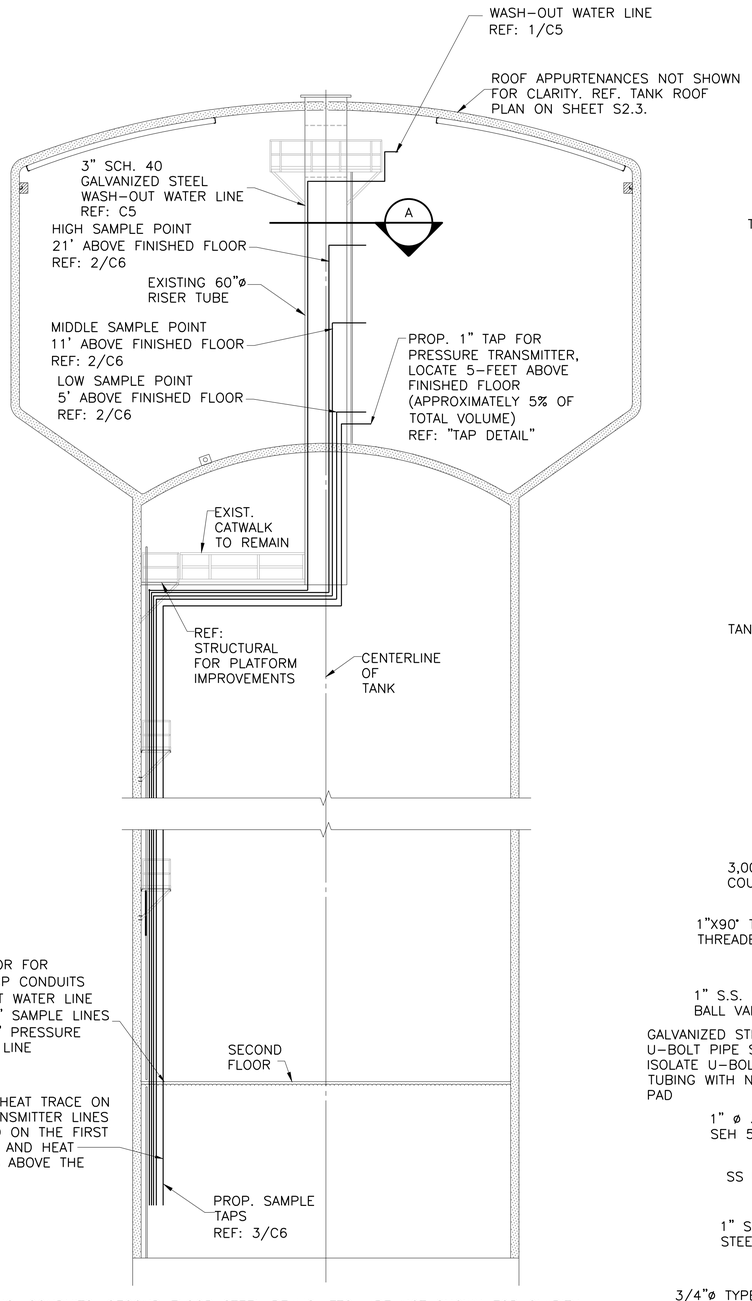
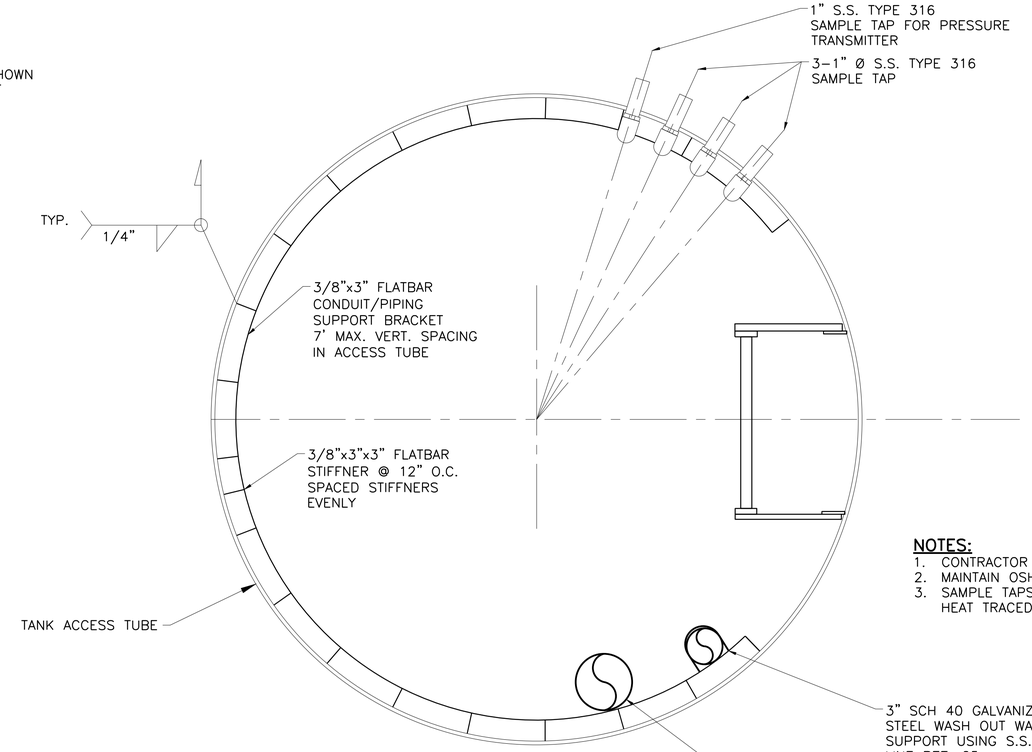
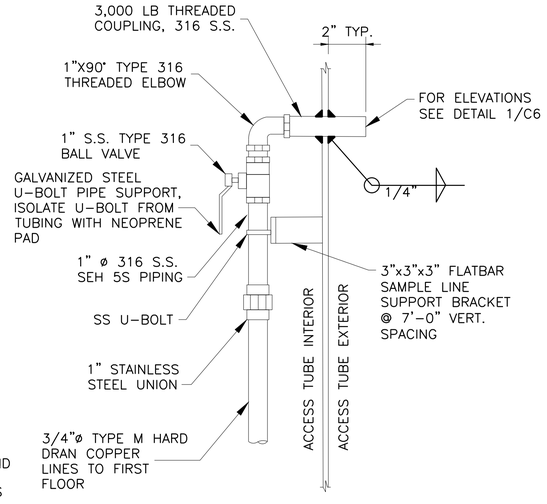


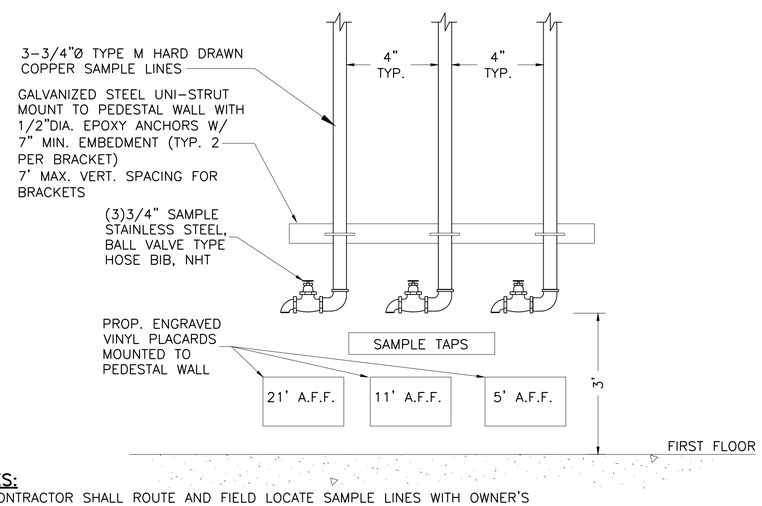


SECTION A-A

NOTES:
1. CONTRACTOR SHALL FIELD LOCATE CONDUITS AND PIPING.
2. MAINTAIN OSHA CLEARANCES FROM LADDERS.
3. SAMPLE TAPS AND TRANSMITTER LINE TO BE INSULATED AND HEAT TRACED.

NOTES:
1. PUMP STATION PIPING, CONDUITS, SECOND FLOOR STEEL BEAMS, ETC. ARE NOT SHOWN FOR CLARITY. SAMPLE LINES, WASH-OUT WATER LINE, AND PRESSURE TRANSMITTER LINE MAY HAVE TO BE ROUTED AROUND THE CIRCUMFERENCE OF THE SECOND FLOOR TO LOCATE APPURTENANCES ON THE FIRST FLOOR. CONTRACTOR MUST FIELD LOCATE SECOND FLOOR PENETRATIONS AND PROVIDE APPROPRIATE PIPE SUPPORTS FOR PIPING ROUTED ON THE SECOND FLOOR.
2. SAMPLE AND TRANSMITTER LINES ARE TO BE INSULATED WITH PREFORMED FLEXIBLE ELASTOMERIC INSULATION (ASTM C534), ARMSTRONG "ARMAFLEX", SCHULLER "RUBATEX" OR APPROVED EQUAL. PROVIDE ALL PURPOSE JACKET, HIGH DENSITY WHITE KRAFT BONDED TO ALUMINUM FOIL, REINFORCED WITH FIBERGLASS YARN LAP AND BUTT, SELF-SEALING, PRESSURE SENSITIVE. SCHULLER "MICRO-LOK", CERTAINTEED "SNAP-ON" OR APPROVED EQUAL.





NOTES:
1. CONTRACTOR SHALL ROUTE AND FIELD LOCATE SAMPLE LINES WITH OWNER'S REPRESENTATIVE.
2. 3/4" PRESSURE TRANSMITTER PIPING NOT SHOWN.
3. FIELD LOCATE LOCATION IN FIRST FLOOR WITH COA.
4. ALL LINES TO BE INSULATED AND HEAT TRACED. REFER TO ELECTRICAL.
5. ALL COPPER AND STAINLESS STEEL PIPING AND VALVES MUST BE NSF 61 CERTIFIED.

1/C6 ELEVATED TANK SECTION
N.T.S

2/C6 TAP DETAIL IN ACCESS TUBE
N.T.S

3/C6 SAMPLE TAPS AT 1ST FLOOR
N.T.S

Freese and Nichols, Inc.
Texas Registered Engineering Firm F-2144
STATE OF TEXAS
CHARLES A. KUCHERA
98388
LICENSED
PROFESSIONAL ENGINEER
9/27/16
FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone - (512) 617-3100
Fax - (512) 617-3101

THE CITY OF AUSTIN
FOUR POINTS ELEVATED RESERVOIR IMPROVEMENTS
SAMPLE TAPS DETAILS 1

COA JOB NO.	AU116177
DATE	9/27/2016
DESIGNED	REM
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CHECKED	.
FILE NAME	WTU-4P-EST-C6.dwg

NO. | ISSUE | BY | DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET C6
SEQ. .

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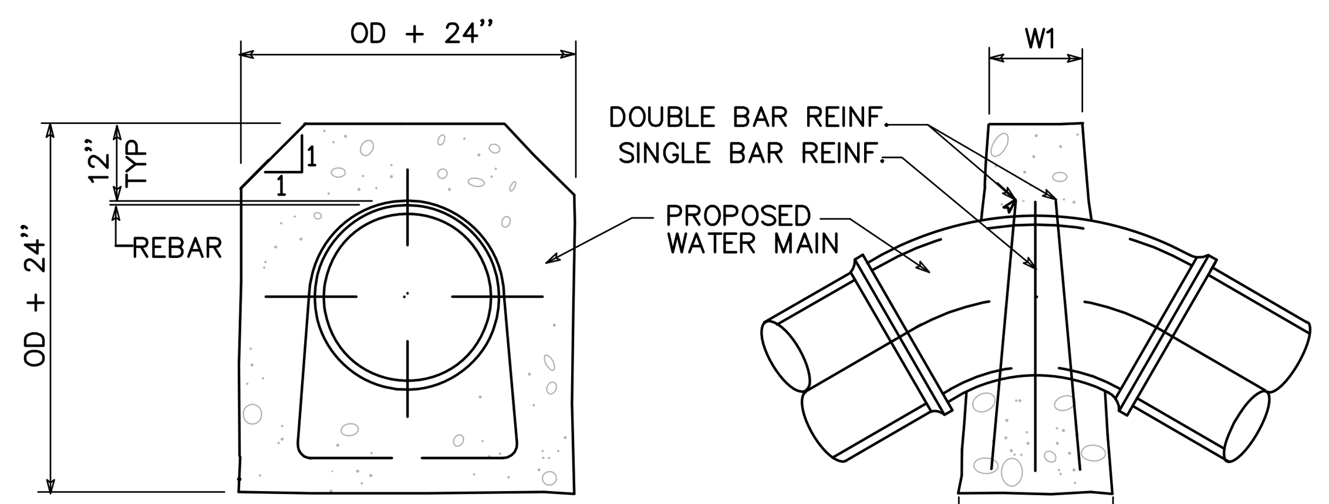


REINFORCEMENT SHALL BE PROVIDED AS FOLLOWS
6"–12" PIPE 1#5
14"–30" PIPE 2#5'S
36"–48" PIPE 2#7'S

VERTICAL DOWN BEND

TABLE A UPWARD THRUST GRAVITY BLOCKS			
PIPE DIA.	MIN. TOP WIDTH W1	ANGLE (degrees)	BOTTOM WIDTH– W2 (in)
6"	6"	0–5	NOTE 2
		5–15	24
		15–25	48
		▻ 25	NOTE 1
8"	6"	0–5	NOTE 2
		5–9	30
		9–15	36
		▻15	NOTE 1
12"	6"	0–5	NOTE 2
		5–15	48
		▻ 15	NOTE 1
16"	12"	0–5	NOTE 2
		5–10	60
		10–15	96
		▻ 15	NOTE 1
24" THRU 36" DIA.		▻5.0	NOTE 1
42" THRU 48" DIA.		▻3.0	NOTE 1

NOTES:

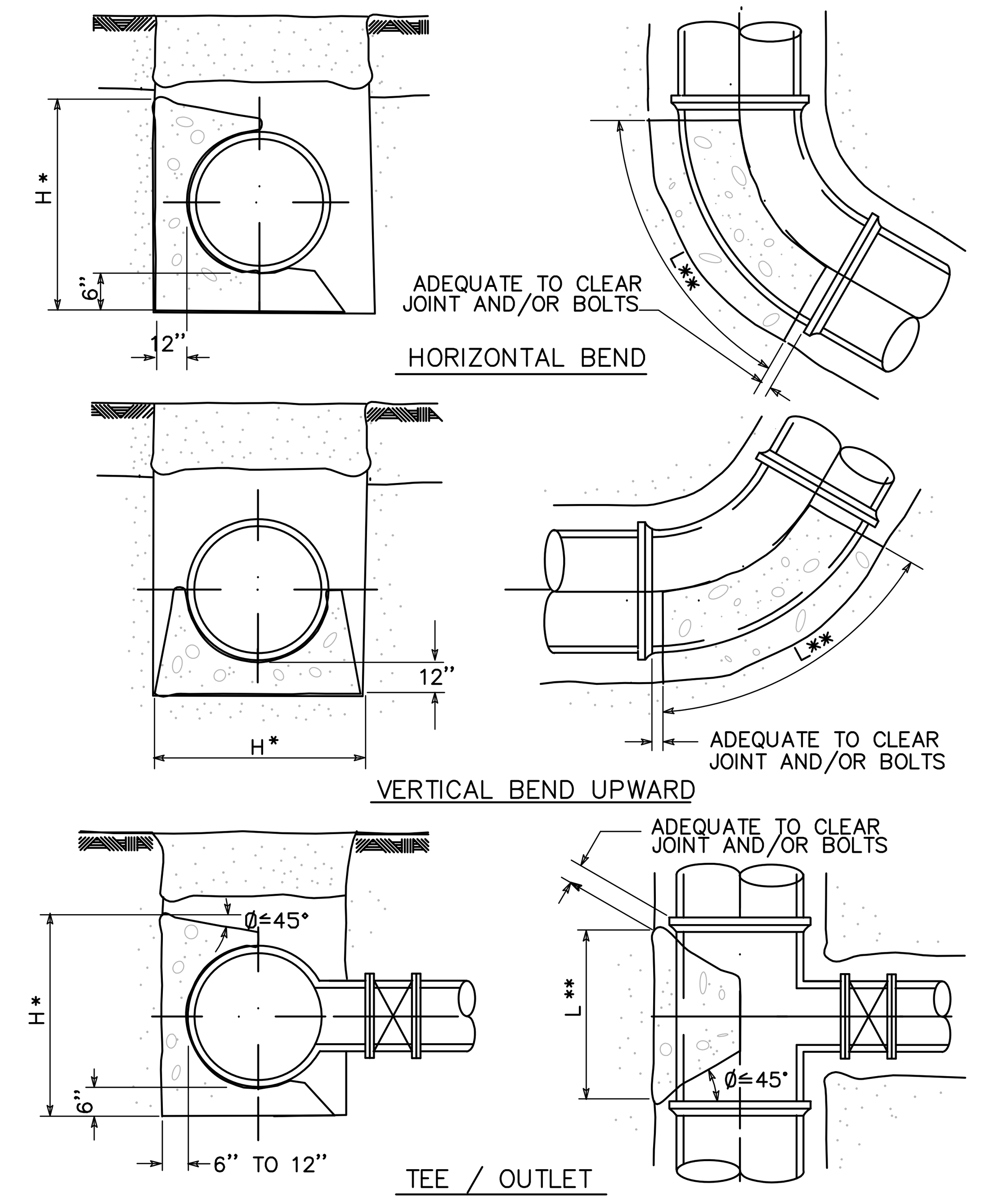
1– FOR ANGLES GREATER THAN THOSE INDICATED RESTRAINED JOINTS SHALL BE INSTALLED

2– FOR JOINT DEFLECTIONS LESS THAN 5 DEGREES, NO HORIZONTAL OR VERTICAL THRUST RESTRAINT IS REQUIRED FOR PIPES LESS THAN 42" IN DIAMETER.

THRUST BLOCK DESIGN AS FOLLOWS
A. PRESSURE OF 150 P.S.I. (ACTUAL IF HIGHER) + 50 % SURGE ALLOWANCE
B. MAXIMIM SOIL BEARING SEE TABLE BELOW

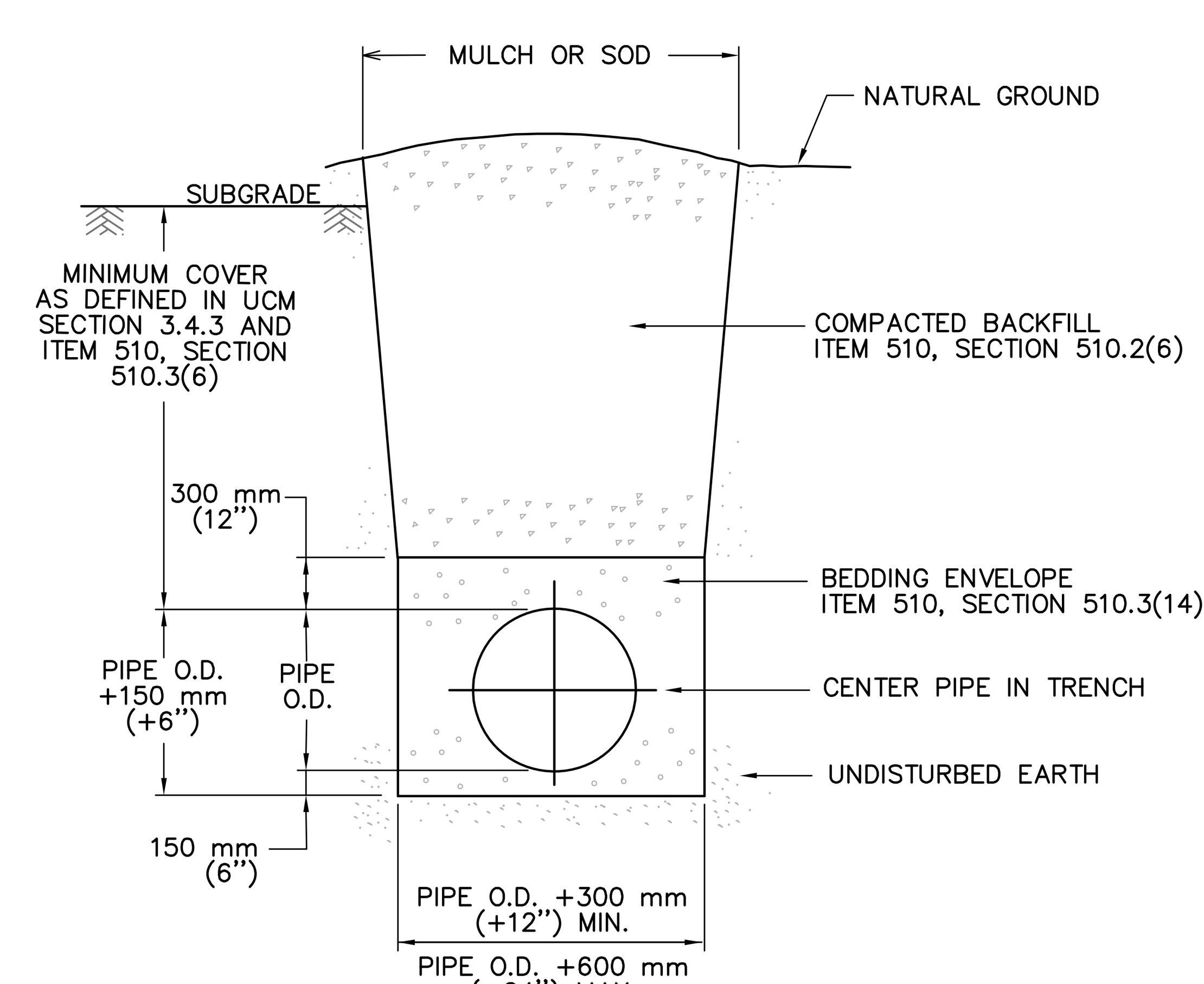
SOIL TYPES	PRESSURE
LOOSE OR SPONGY SOIL	1500 Lb/Sq.Ft.
UNDISTURBED SOIL, CALICHE	2000 Lb/Sq.Ft.
LIMESTONE ROCK	4000 Lb/Sq.Ft.

CITY OF AUSTIN
WATER AND WASTEWATER UTILITY
CONCRETE THRUST BLOCKING
RECORD COPY SIGNED BY JAMES E. THOMPSON — APPROVED — 2/11/86 DATE
ADOPTED: 2/11/86
SCALE: N.T.S.
INITIAL:
STANDARD NO. 510–6
1 OF 2



* THE DIMENSION FOR "H" MUST BE GREATER THAN DIAMETER OF THE PIPE
** LENGTH "L" ALONG THE BEND MUST BE GREATER THAN "H" AND LESS THAN 2 TIMES "H"

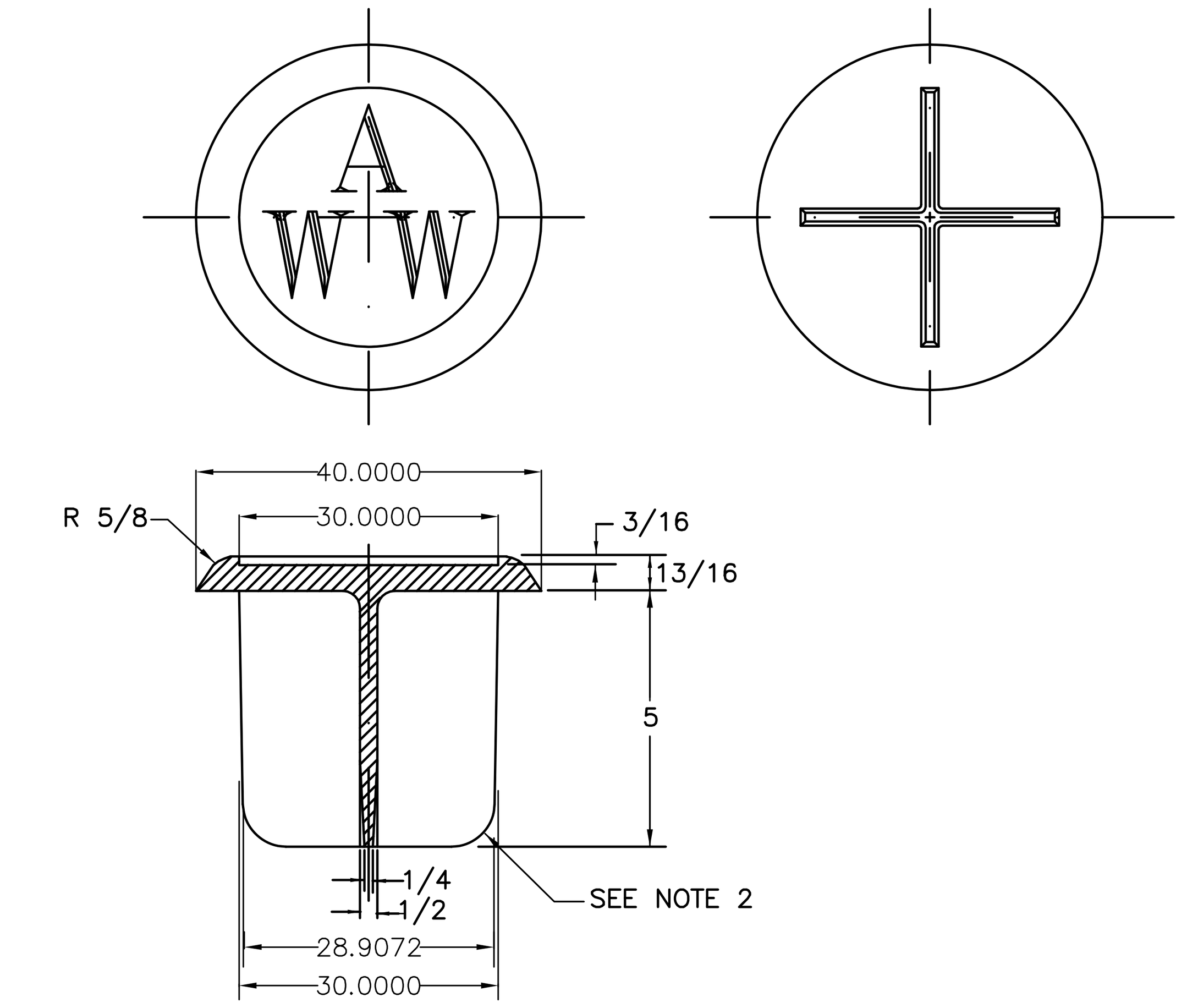
CITY OF AUSTIN
WATER AND WASTEWATER UTILITY
CONCRETE THRUST BLOCKING
RECORD COPY SIGNED BY JAMES E. THOMPSON — APPROVED — 2/11/86 DATE
ADOPTED: 2/11/86
SCALE: N.T.S.
INITIAL:
STANDARD NO. 510–6
2 OF 2



REFERENCES:
1. UTILITY CRITERIA MANUAL SECTION 3.4.3, "FINAL DESIGN"
2. STANDARD SPECIFICATION MANUAL ITEM 510,
SECTION 510.2(6), "SELECT BACKFILL OR BORROW";
SECTION 510.3(6), "TRENCH DEPTH AND DEPTH OF COVER";
SECTION 510.3(14), "PIPE BEDDING ENVELOPE"

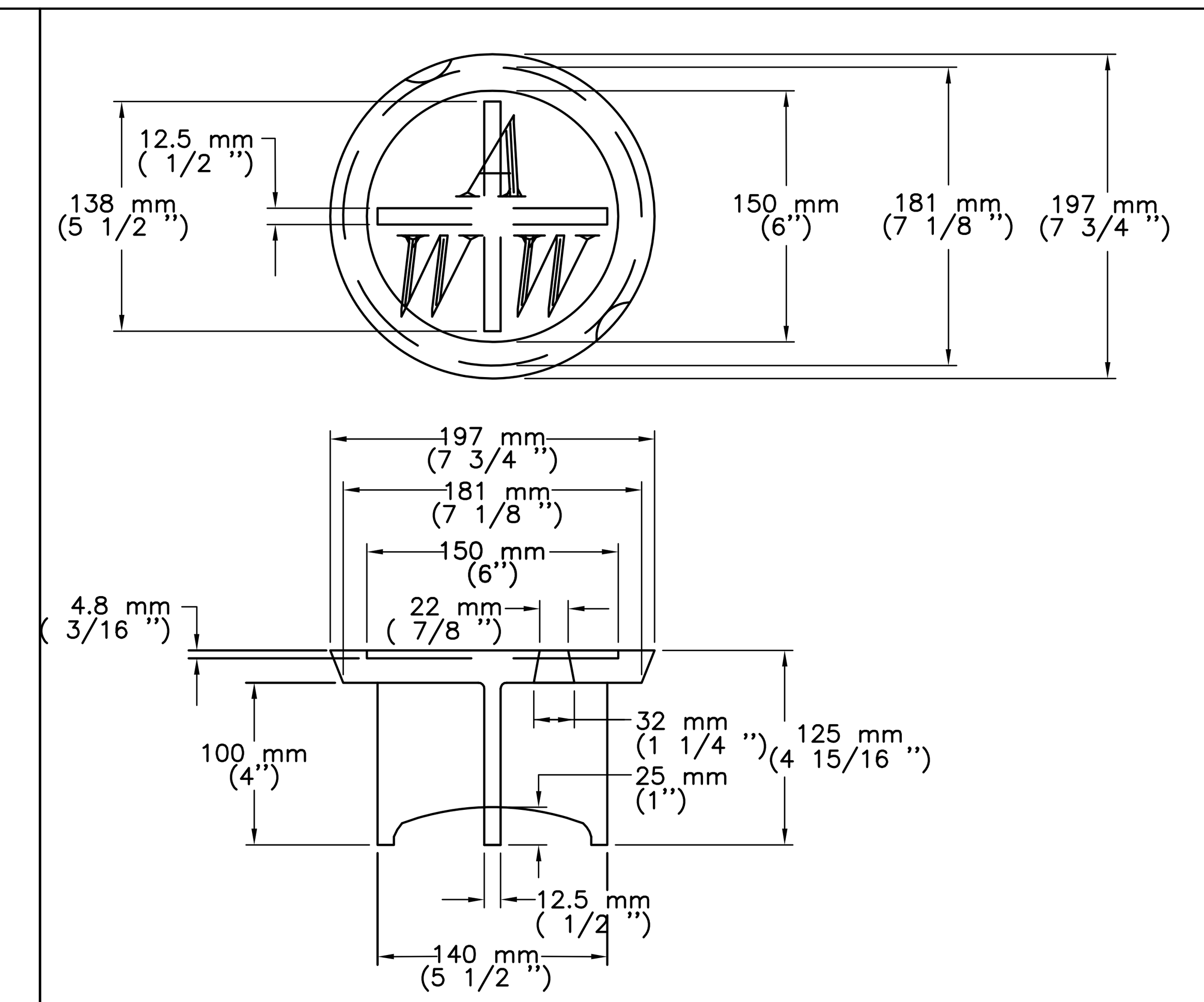
CITY OF AUSTIN
DEPARTMENT OF PUBLIC WORKS
TYPICAL TRENCH DETAIL WITH UNFINISHED SURFACE
RECORD COPY SIGNED BY BILL GARDNER — 03/13/06 ADOPTED
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.
STANDARD NO. 510S–5

REV. DATE: 2-10-97 DESCRIPTION: STANDARD MANUAL



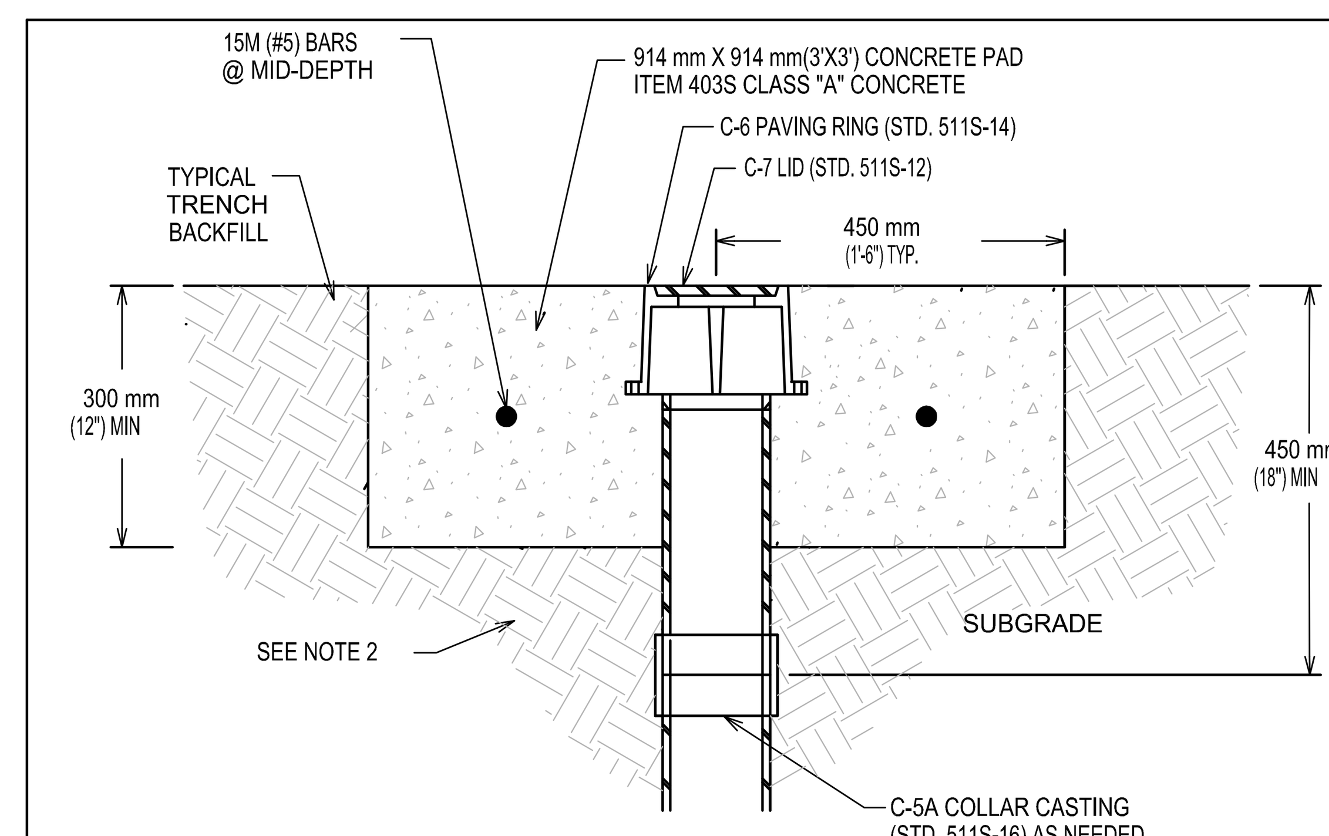
NOTES:
1. MATERIAL SHALL BE GRAY CAST IRON, ASTM A48, GRADE 30B.
2. TYPICAL FILLET IS 3/16" RADIUS
3. LETTERING SHALL BE 1 1/2" HEIGHT AND LOCATED AS SHOWN.
4. THIS LID FITS INSIDE 6" I.D. PIPE.
5. THE MANUFACTURER'S IDENTIFICATION AND CASTING NUMBER, AND THE COUNTRY WHERE CAST, SHALL BE DISTINCTLY CAST ONTO EACH LID.
6. DRAFT AND SHRINKAGE ALLOWANCE SHALL BE IN ACCORD WITH NORMAL FOUNDRY PRACTICE.
7. FINISH BY REMOVING FINS AND FLASHING; PAINT WITH BLACK ASPHALT COATING,
8. WEIGHT: APPROXIMATELY 13 LBS.
9. ALL DIMENSIONS IN INCHES.

CITY OF AUSTIN
WATER AND WASTEWATER UTILITY
VALVE BOX CASTING C–3 LID
RECORD COPY SIGNED BY G. L. MARTIN — APPROVED — 4/22/97 DATE
ADOPTED: 9/16/88
SCALE: N. T. S.
INITIAL: RAM
STANDARD NO. 511–11

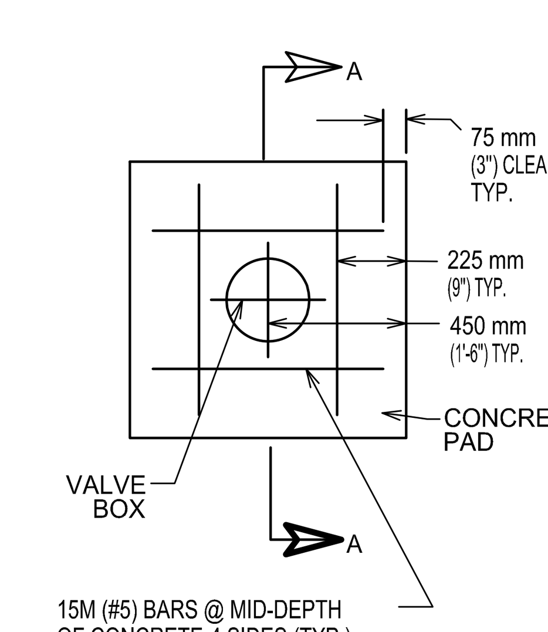


NOTES:
1. MATERIAL SHALL BE GRAY CAST IRON, ASTM A48, GRADE 30B.
2. TYPICAL FILLET IS 4.8 mm (3/16 ") RADIUS
3. LETTERING SHALL BE 38 mm (1 1/2 ") HEIGHT AND LOCATED AS SHOWN.
4. THIS LID REQUIRES TWO (2) PICK SLOTS.
5. THE MANUFACTURER'S IDENTIFICATION AND CASTING NUMBER, AND THE COUNTRY WHERE CAST, SHALL BE DISTINCTLY CAST ONTO EACH LID.
6. DRAFT AND SHRINKAGE ALLOWANCE SHALL BE IN ACCORD WITH NORMAL FOUNDRY PRACTICE.
7. FINISH BY REMOVING FINS AND FLASHING; PAINT WITH BLACK ASPHALT COATING,
8. WEIGHT: APPROXIMATELY 6 kg (13 lbs).

CITY OF AUSTIN
WATER AND WASTEWATER UTILITY
VALVE BOX CASTING C–7 LID
RECORD COPY SIGNED BY KATHI F. PAYNE — 4/5/99 ADOPTED
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.
STANDARD NO. 511S–12



SECTION A-A

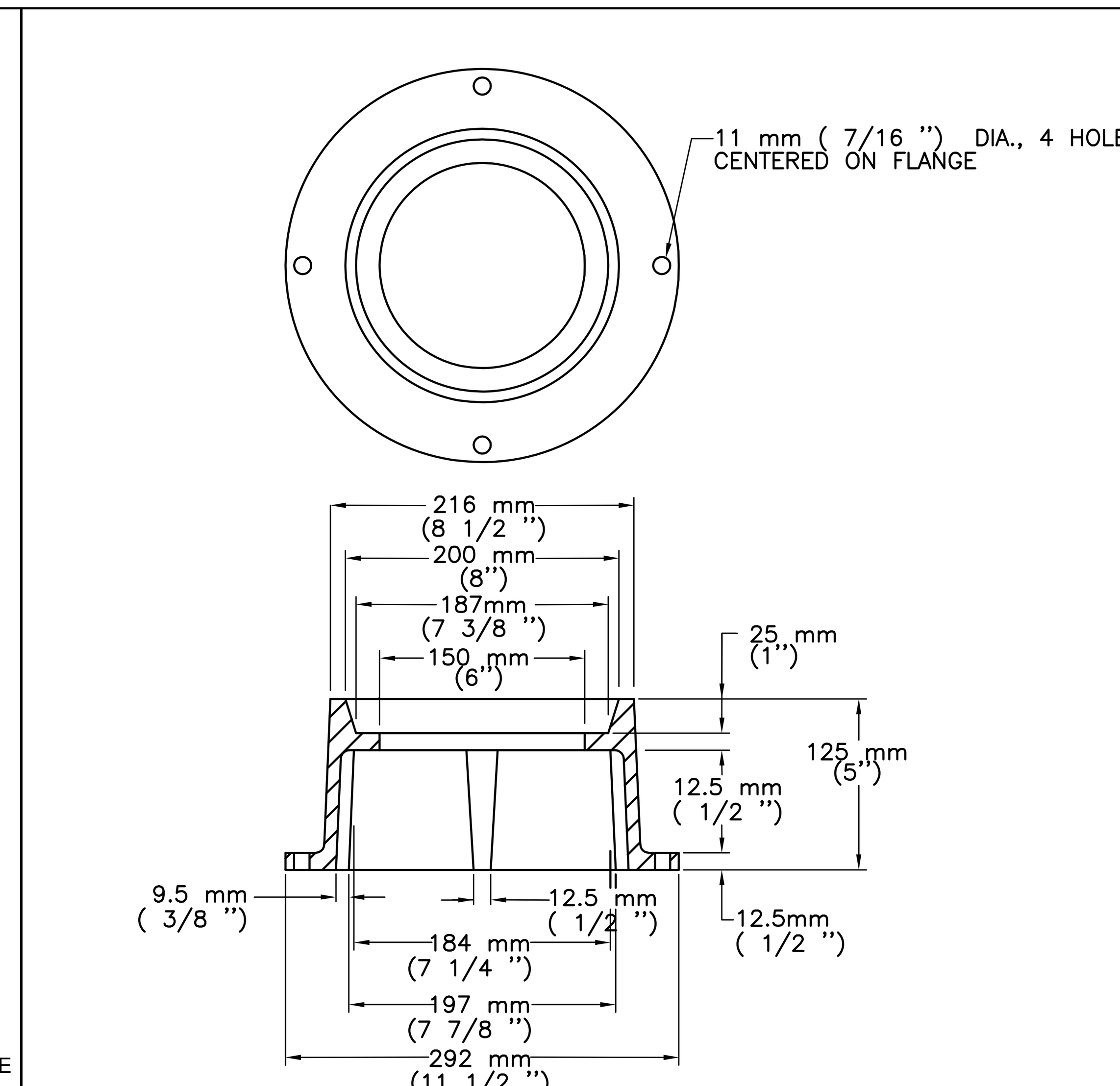


PLAN VIEW

NOTES:
1. PADS ARE TO BE INSTALLED AROUND VALVE BOX LIDS ON ALL WATER VALVES IN UNPAVED AREAS.
2. TRENCH BACKFILL SHALL BE COMPACTED AS PER ITEM 510.
3. VALVE CASTINGS SHALL BE ADJUSTED TO GRADE AFTER FINAL GRADING OF TRENCH BACKFILL IS COMPLETED.
4. CLEAN VALVE BOX OF ALL DEBRIS DOWN TO THE VALVE OPERATOR.
5. REINFORCING STEEL SHALL MEET ITEM 406S, REINFORCING STEEL.
6. IN UNDEVELOPED AREAS THAT WILL NOT BE REGULARLY MOWED AND MAINTAINED, INSTALL ONE DELINEATOR STAKE IMMEDIATELY ADJACENT TO THE EDGE OF THE PAD. DELINEATOR SHALL BE BLUE FOR WATER (FLEX STAKE HD600 OR APPROVED EQUAL) AND PURPLE FOR RECLAIMED WATER (CHRISTY'S PART NO. IDSF66.PRW WITH VANDAL RESISTANT ANCHOR KIT PART NO. IDSF.ANCHOR INSTALLED OR APPROVED EQUAL) AND SHALL EXTEND AT LEAST 60" ABOVE GROUND. DELINEATORS SHALL HAVE 2" WIDE, WHITE, TYPE I REFLECTIVE TAPE (COLE FARMS OR APPROVED EQUAL) MOUNTED DIAGONALLY AT 12" SPACING ON BOTH SIDES.

CITY OF AUSTIN

CITY OF AUSTIN
AUSTIN WATER UTILITY
WATER VALVE BOX CONCRETE PAD IN UNPAVED AREA
RECORD COPY SIGNED BY SAM ANGOORI — 10/19/09 ADOPTED
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.
STANDARD NO. 511S-13C



NOTES:
1. MATERIALS SHALL BE GRAY CAST IRON, ASTM A48, GRADE 30B.
2. THE MANUFACTURER'S IDENTIFICATION & CASTING NUMBER & THE COUNTRY WHERE CAST, SHALL BE DISTINCTLY CAST ONTO EACH RING.
3. DRAFT & SHRINKAGE ALLOWANCE SHALL BE IN ACCORD WITH NORMAL FOUNDRY PRACTICE.
4. FINISH BY REMOVING FINS & FLASHING; PAINT WITH BLACK ASPHALT COATING.
5. WEIGHT: APPROXIMATELY 10.5 kg (23 lbs).

CITY OF AUSTIN
WATER AND WASTEWATER UTILITY
VALVE BOX CASTING C–6 PAVING RING
RECORD COPY SIGNED BY KATHI F. PAYNE — 4/5/99 ADOPTED
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.
STANDARD NO. 511S–14

7–27–2016
STATE OF TEXAS
CHIEN Y. LEE
66022
REGISTERED
PROFESSIONAL ENGINEER

FREESE AND NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone – (512) 617–3100
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Freese and Nichols, Inc.
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HEJL, LEE & ASSOCIATES, INC.
ENGINEERING · SURVEYING · PLANNING
321 ED SCHMIDT BLVD, SUITE 100, HUTTO, TX 78634
Ph:(512) 642–3292 FAX:(512) 642–4230
TBPE FIRM NO. F–755
TBPLS FIRM NO. 10058500

THE CITY OF AUSTIN
FOUR POINTS ELEVATED RESERVOIR IMPROVEMENTS

STANDARD WATER DETAIL

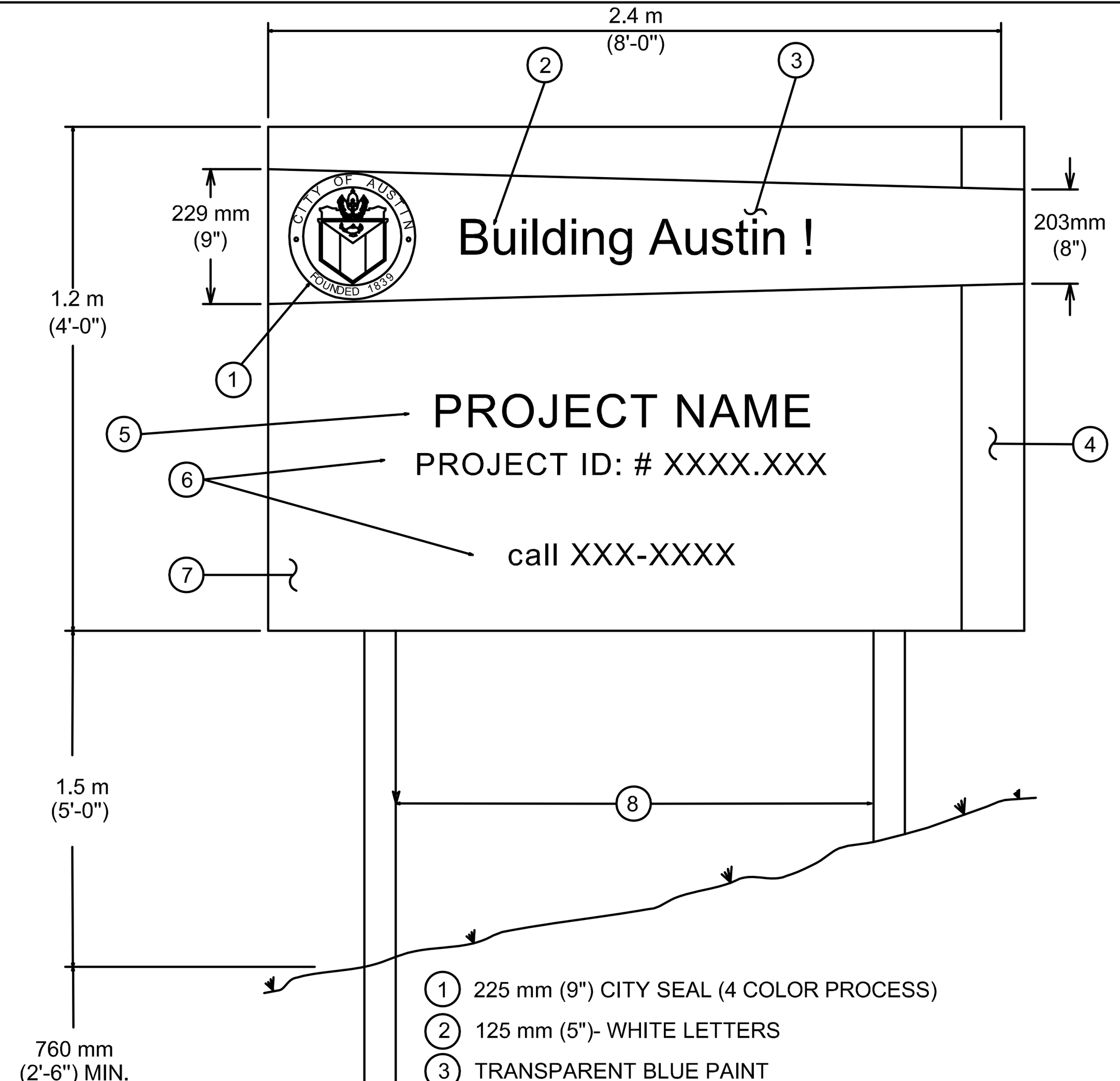
F&N JOB NO. AU116177
DATE 8/8/2016
DESIGNED
DRAWN
REVISED
CHECKED

NO.	ISSUE	BY	DATE

FILE NAME

VERIFY SCALE 0 1 Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.

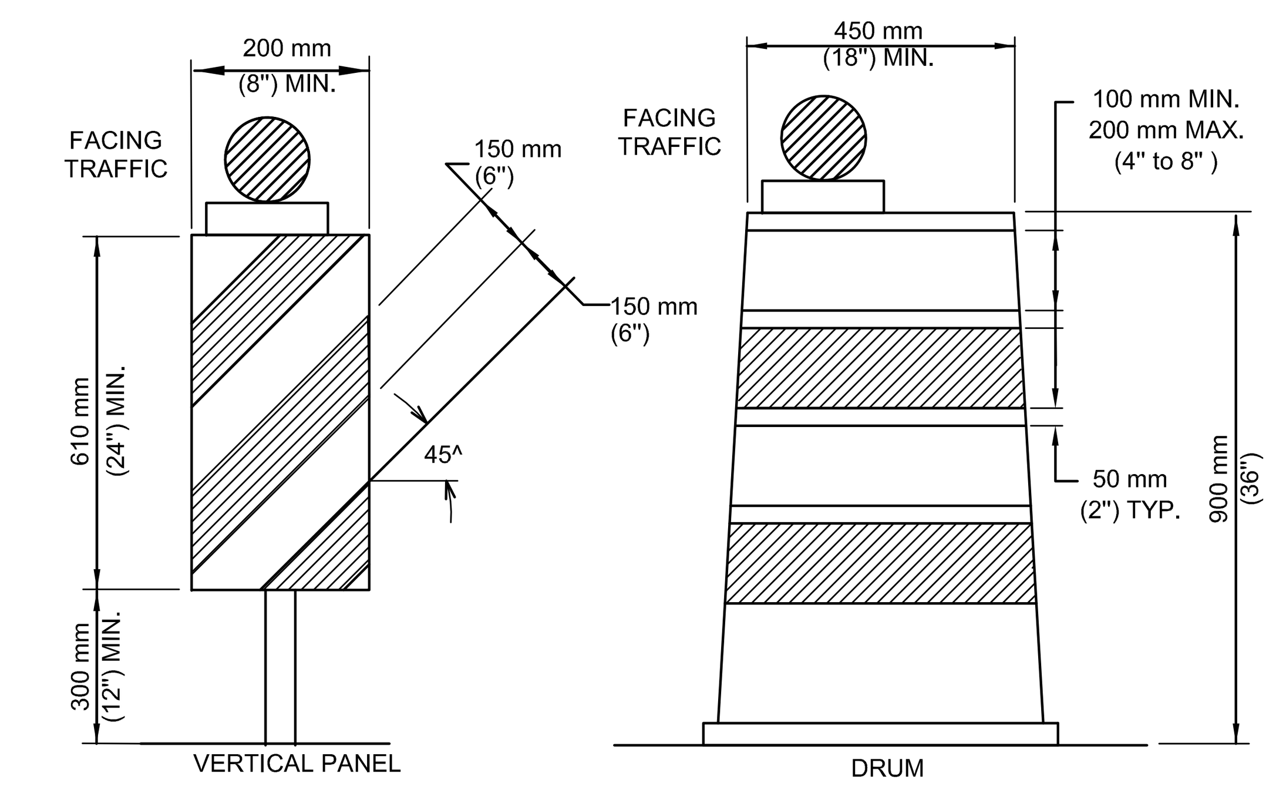
SHEET D1
SEQ.



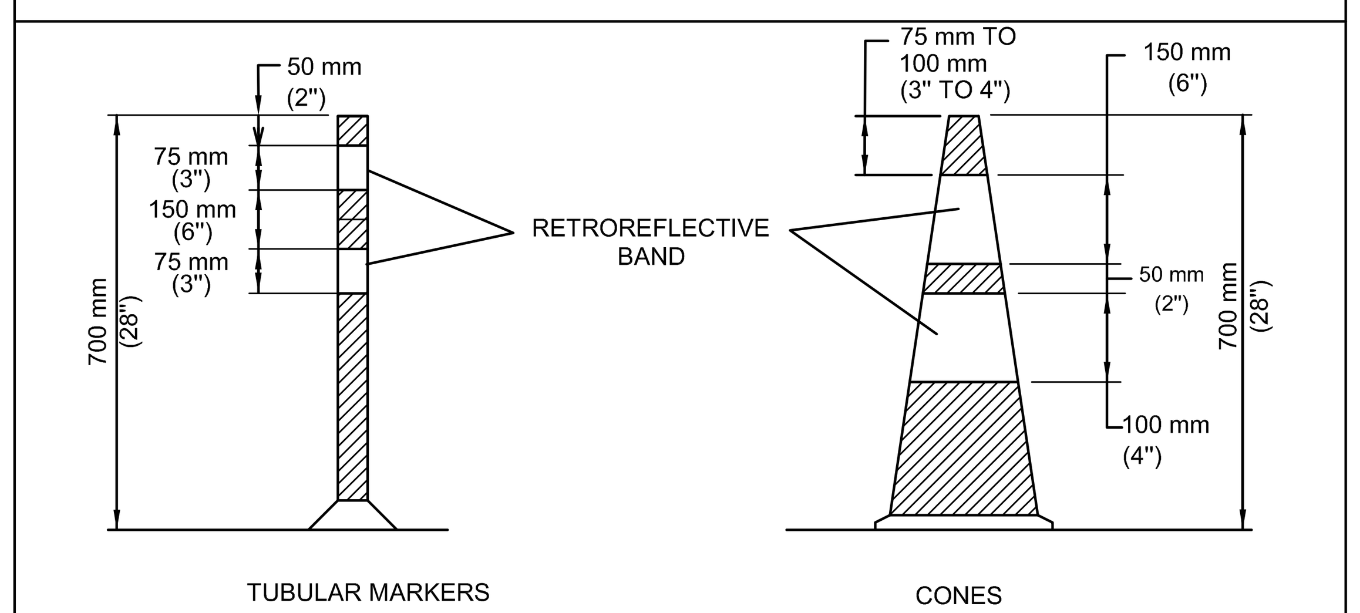
1. 225 mm (9") CITY SEAL (4 COLOR PROCESS)
2. 125 mm (5")- WHITE LETTERS
3. TRANSPARENT BLUE PAINT
4. 188 mm (7.5") WIDE- TRANSPARENT YELLOW PAINT STRIPE
5. 125 mm (5")- BLUE LETTERS
6. 75 mm (3")- BLUE LETTERS
7. WHITE BACKGROUND ON PLYWOOD, NON-REFLECTIVE. PAINT REQUIREMENTS FOR BACKGROUND AND POST, BLUE TONED WHITE 93-21667 CROSS ALLEN OR EQUAL.
8. 100 mm X 100 mm (4"X4") CLASS 6 WOOD POST PAINTED WHITE

NOTES:
1. ALL MATERIALS SHALL BE FURNISHED BY THE CONTRACTOR.
2. IF SIGN IS USED IN PHASED CONSTRUCTION, POSTS SHALL BE MOUNTED ON SKIDS. SEE STANDARD 804S-5, SHEET 5 OF 13.
3. SIGN MUST BE IN COLOR.

CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	2.4mx1.2m (8'x4') C.I.P. BUILDING PROJECT SIGN	
RECORD COPY SIGNED BY KERI JUAREZ — 01/04/11 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 802S-1



LONG TERM AND INTERMEDIATE TERM STATIONARY WORK



SHORT TERM AND SHORT DURATION WORK

SEE STANDARD 804S-5
SHEET 12 OF 13 AND SHEET 13 OF 13
FOR GENERAL NOTES AND DEVICE SPACING.

CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	CHANNELIZING DEVICES	
RECORD COPY SIGNED BY SAM ANGOORI — *01/04/10* ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 804S-5 1 OF 13

CHANNELIZING DEVICES

1. ALL CHANNELIZING DEVICES SHALL HAVE WARNING LIGHTS OR LARGE REFLECTORS WHEN USED AT NIGHT. FLASHING WARNING LIGHTS MAY BE PLACED ON CHANNELIZING DEVICES USED SINGULARLY OR IN GROUPS TO MARK A SPOT CONDITION. WARNING LIGHTS ON CHANNELIZING DEVICES USED IN A SERIES SHALL BE STEADY-BURN. CHANNELIZING DEVICES IN TAPERS AT NIGHT SHALL HAVE TYPE C WARNING LIGHTS.
2. THE RETROREFLECTIVE MATERIAL USED ON CHANNELIZING DEVICES SHALL HAVE A SMOOTH, SEALED OUTER SURFACE.
3. THE NAME AND TELEPHONE NUMBER OF THE AGENCY, CONTRACTOR OR SUPPLIER SHALL BE SHOWN ON THE NON-RETROREFLECTIVE SURFACE OF ALL CHANNELIZING DEVICES. THE LETTERS AND NUMBERS SHALL BE A NON-RETROREFLECTIVE COLOR AND NOT OVER 50 mm (2") IN HEIGHT.
4. PARTICULAR ATTENTION SHOULD BE GIVEN TO ASSURE THAT CHANNELIZING DEVICES ARE MAINTAINED AND KEPT CLEAN, VISIBLE AND PROPERLY POSTITIONED AT ALL TIMES. DEVICES SHALL BE REPLACED THAT ARE DAMAGED AND HAVE LOST A SIGNIFICANT AMOUNT OF THEIR RETROREFLECTIVITY AND EFFECTIVENESS.

CONES

CONES SHALL PREDOMINANTLY BE ORANGE, FLUORESCENT RED-ORANGE, OR FLUORESCENT YELLOW-ORANGE IN COLOR, NOT LESS THAN 70 mm (28") IN HEIGHT, AND SHALL BE MADE OF A MATERIAL THAT CAN BE STRUCK WITHOUT DAMAGING VEHICLES ON IMPACT. FOR NIGHT TIME USE, CONES SHALL BE RETROREFLECTIVE OR EQUIPPED WITH LIGHTING DEVICES FOR MAXIMUM VISIBLITY. RETROREFLECTION OF CONES SHALL BE PROVIDED BY A WHITE BOND 150 mm (6") WIDE, NO MORE THAN 75 TO 100 mm (3 TO 4") FROM THE TOP OF THE CONE, AND AN ADDITIONAL 100 mm (4") WHITE BAND A MINIMUM OF 50 mm (2") BELOW THE 150 mm (6") BAND. TRAFFIC CONES ARE NORMALLY USED FOR SHORT-TERM STATIONARY AND SHORT DURATION WORK. HOWEVER, CONES MAY BE USED FOR INTERMEDIATE-TERM STATIONARY WORK AT NIGHT, IF THE SITE IS CONTINUOUSLY MANNED.

TUBULAR MARKERS

TUBULAR MARKERS SHALL PREDOMINANTLY BE ORANGE IN COLOR, NOT LESS THAN 700 mm (28") IN HEIGHT , A MINIMUM 50 mm (2") WIDE WHEN FACING TRAFFIC AND MADE OF A MATERIAL THAT CAN BE STRUCK WITHOUT DAMAGING VEHICLES. FOR NIGHT TIME USE, TUBLULAR MARKERS SHALL BE RETROREFLECTIVE PROVIDED BY TWO (2) 75 mm (3") WIDE WHITE BANDS PLACED A MAXIMUM OF 50 mm (2") FROM THE TOP, WITH A MAXIMUM OF 150 mm (6") BETWEEN BANDS. TUBULAR MARKERS ARE NORMALLY USED FOR SHORT-TERM STATIONARY AND SHORT DURATION WORK. HOWEVER, TUBULAR MARKERS MAY BE USED FOR INTERMEDIATE-TERM STATIONARY WORK AT NIGHT, IF THE SITE IS CONTINUOUSLY MANNED.

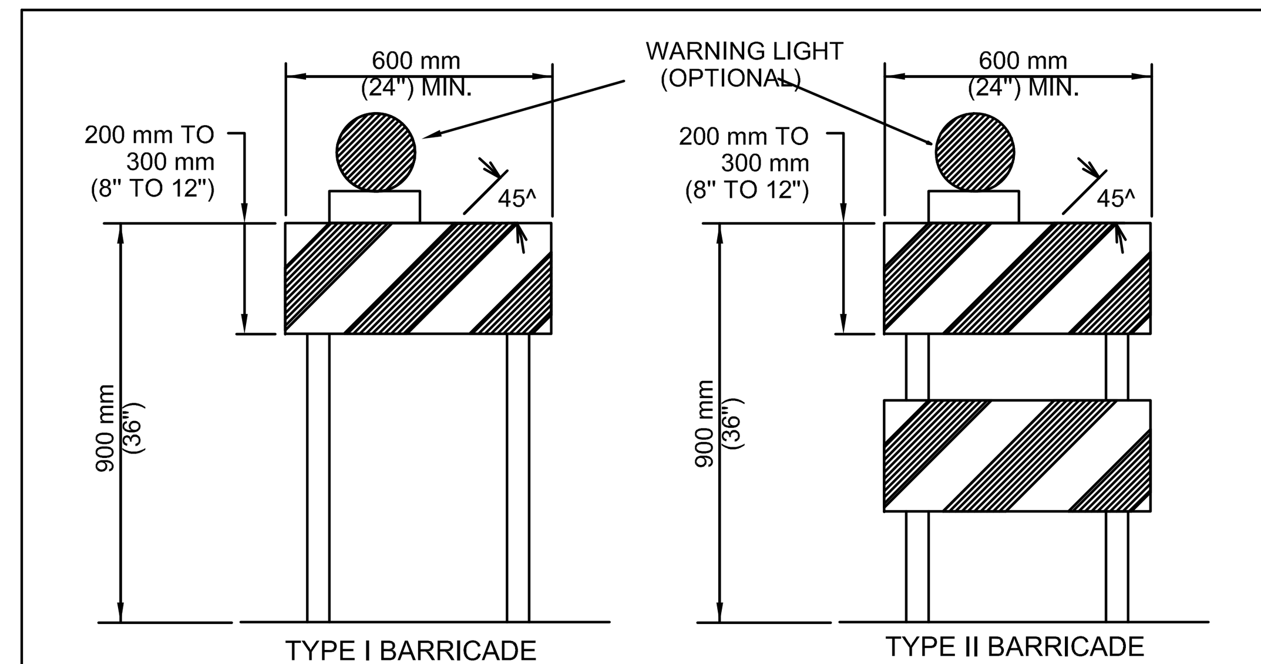
VERTICAL PANELS

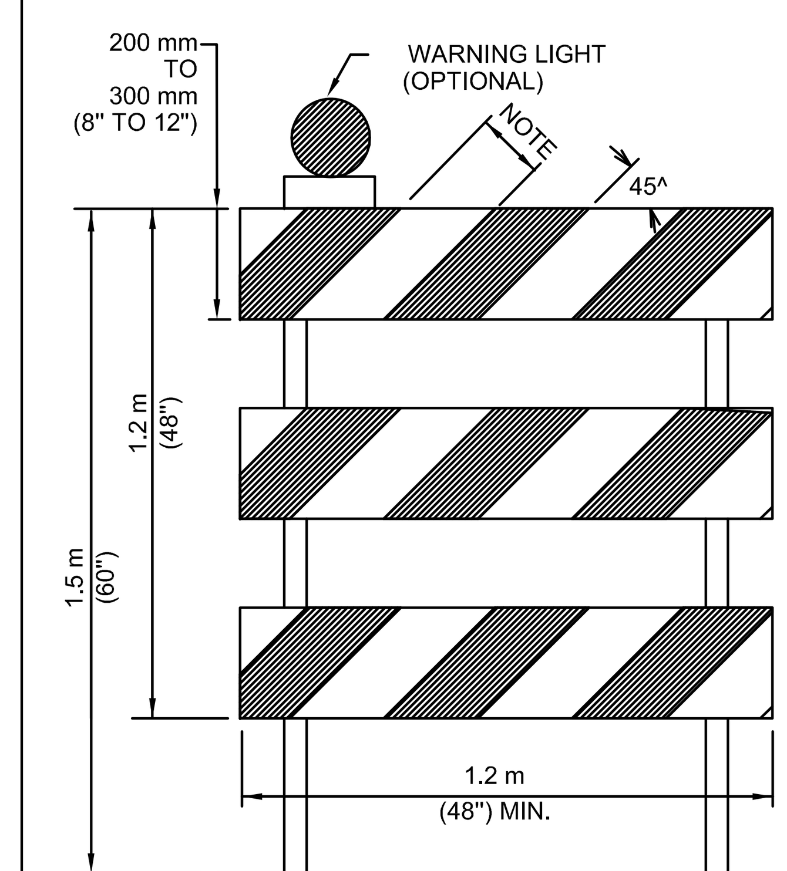
VERTICAL PANELS SHALL BE 200 TO 300 mm (8 TO 12") WIDE AND AT LEAST 600 mm (24") IN HEIGHT. THEY SHALL HAVE ORANGE AND WHITE STRIPES, AND BE RETROREFLECTIVE. PANEL STRIPE WIDTHS SHALL BE 150 mm (6") EXCEPT WHERE PANEL HEIGHTS ARE LESS THAN 900 mm (36"), WHEN 100 mm (4") STRIPES MAY BE USED. IF USED FOR TWO-WAY TRAFFIC, BACK-TO-BACK PANELS SHALL BE USED.

DRUMS

1. DRUMS USED FOR TRAFFIC WARNING OR CHANNELIZATION SHALL BE CONSTRUCTED OF LIGHT-WEIGHT FLEXIBLE AND DEFORMABLE MATERIALS AND BE A MINIMUM OF 900 mm (36") IN HEIGHT, AND HAVE AT LEAST 450 mm (18") MINIMUM WIDTH, REGARDLESS OF OREINTATION. STEEL DRUMS SHALL NOT BE USED. THE MARKINGS ON DRUMS SHALL BE HORIZONTAL, CIRCUNFERENTIAL, ALTERNATING ORANGE AND WHITE RETROREFLECTIVE STRIPES 100 TO 200 mm (4 TO 8") WIDE. EACH DRUM SHALL HAVE A MINIMUM OF TWO (2) ORANGE AND TWO (2) WHITE STRIPES. ANY NON-RETROREFLECTIVE SPACES BETWEEN THE HORIZONTAL ORANGE AND WHITE STRIPES, SHALL NOT EXCEED 50 mm (2") WIDE. DRUMS SHALL HAVE CLOSED TOPS THAT WILL NOT ALLOW COLLECTION OF ROADWORK OR OTHER DEBRIS.
2. DRUMS SHOULD NOT BE WEIGHTED WITH SAND, WATER OR ANY MATERIAL TO AN EXTENT THAT WOULD MAKE THE HAZARDOUS TO MOTORISTS, PEDESTRIANS OR WORKERS. WHEN THEY ARE USED IN REGIONS SUSCEPTIBLE TO FREEZING, THEY SHOULD HAVE DRAINAGE HOLES IN THE BOTTOM SO WATER WILL NOT ACCUMULATE AND FREEZE,CAUSING A HAZARD IF STRUCK BY A MOTORIST. BALLAST SHALL NOT BE PLACED ON TOP OF THE DRUM.

CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	CHANNELIZING DEVICES	
RECORD COPY SIGNED BY SAM ANGOORI — *01/04/10* ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 804S-5 2 OF 13





NOTES:
1. NOMINAL LUMBER DIMENSIONS ARE SATISFACTORY FOR BARRICADE RAIL WIDTH DIMENSIONS.
2. RAIL STRIPE WIDTHS SHALL BE 150 mm (6") EXCEPT WHERE RAIL LEGNTHS ARE LESS THAN 900 mm (36"), THEN 100 mm (4") WIDE STRIPES MAY BE USED.
3. THE SIDE OF BARRICADES FACING TRAFFIC SHALL HAVE RETRO-REFLECTIVE RAIL FACES.

SEE STANDARD 804S-5
SHEET 12 OF 13 AND SHEET 13 OF 13
FOR GENERAL NOTES AND DEVICE SPACING.

CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	BARRICADES	
RECORD COPY SIGNED BY SAM ANGOORI — *01/04/10* ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 804S-5 3 OF 13

BARRICADES

1. BARRICADES SHALL BE OF THREE TYPES: TYPE I, TYPE II OR TYPE III.
2. STRIPES ON BARRICADE RAILS SHALL BE ALTERNATING ORANGE AND WHITE RETRO-REFLECTIVE STRIPES (SLOPING DOWNWARD AT AN ANGLE OF 45 DEGREES IN THE DIRECTION TRAFFIC IS TO PASS). THE STRIPES SHALL BE 150 mm (6") WIDE, EXCEPT WHERE RAIL LENGTHS ARE LESS THAN 900 mm (36"), WHEN 100 mm (4") WIDE STRIPES MAY BE USED.
3. WHERE A BARRICADE EXTENDS ENTIRELY ACROSS A ROADWAY, THE SURFACE STRIPES SHOULD SLOPE DOWNWARD IN THE DIRECTION TOWARD WHICH TRAFFIC MUST TURN. WHERE BOTH RIGHT AND LEFT TURNS ARE PROVIDED, THE STRIPES MAY SLOPE DOWN-WARD IN BOTH DIRECTIONS FROM THE CENTER OF THE BARRICADE OR BARRICADES. WHERE NO TURNS ARE INTENDED, THE STRIPES SHOULD SLOPE DOWNWARD TOWARD THE CENTER OF THE BARRICADE OR BARRICADES.
4. BARRICADE RAILS SHOULD BE SUPPORTED IN A MANNER THAT WILL ALLOW THEM TO BE SEEN BY THE MOTORIST AND PROVIDE A STABLE SUPPORT NOT EASILY BLOWN OVER BY THE WIND OR TRAFFIC. FOR TYPE I BARRICADES, THE SUPPORT MAY INCLUDE OTHER UNSTRIPED HORIZONTAL PANELS NECESSARY TO PROVIDE STABILITY.
5. BARRICADES ARE LOCATED ADJACENT TO TRAFFIC AND ARE THEREFORE SUBJECT TO IMPACT WITH ERRANT VEHICLES. BECAUSE OF THEIR VULNERABLE POSITION AND THE HAZARD THEY COULD CREATE, THEY SHOULD BE CONSTRUCTED OF LIGHTWEIGHT MATERIALS AND HAVE NO RIGID STAY BRACING FOR A-FRAME DESIGNS. ALL BARRICADE SYSTEMS SHOULD BE CRASHWORTHY.
6. ON HIGH-SPEED EXPRESSWAYS OR IN OTHER SITUATION WHERE BARRICADES MAY BE SUSCEPTIBLE TO OVERTURING IN THE WIND, SANDBAGS SHOULD BE USED FOR BALLASTING. SANDBAGS MAY BE PLACED ON PARTS OF THE FRAME OR STAYS TO PROVIDE THE REQUIRED BALLAST BUT SHALL NOT BE PLACED ON TOP OF ANY STRIPED RAIL. BARRICADES SHALL NOT BE BALLASTED BY HEAVY OBJECTS SUCH AS ROCKS OR CHUNKS OF CONCRETE.

CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	BARRICADES	
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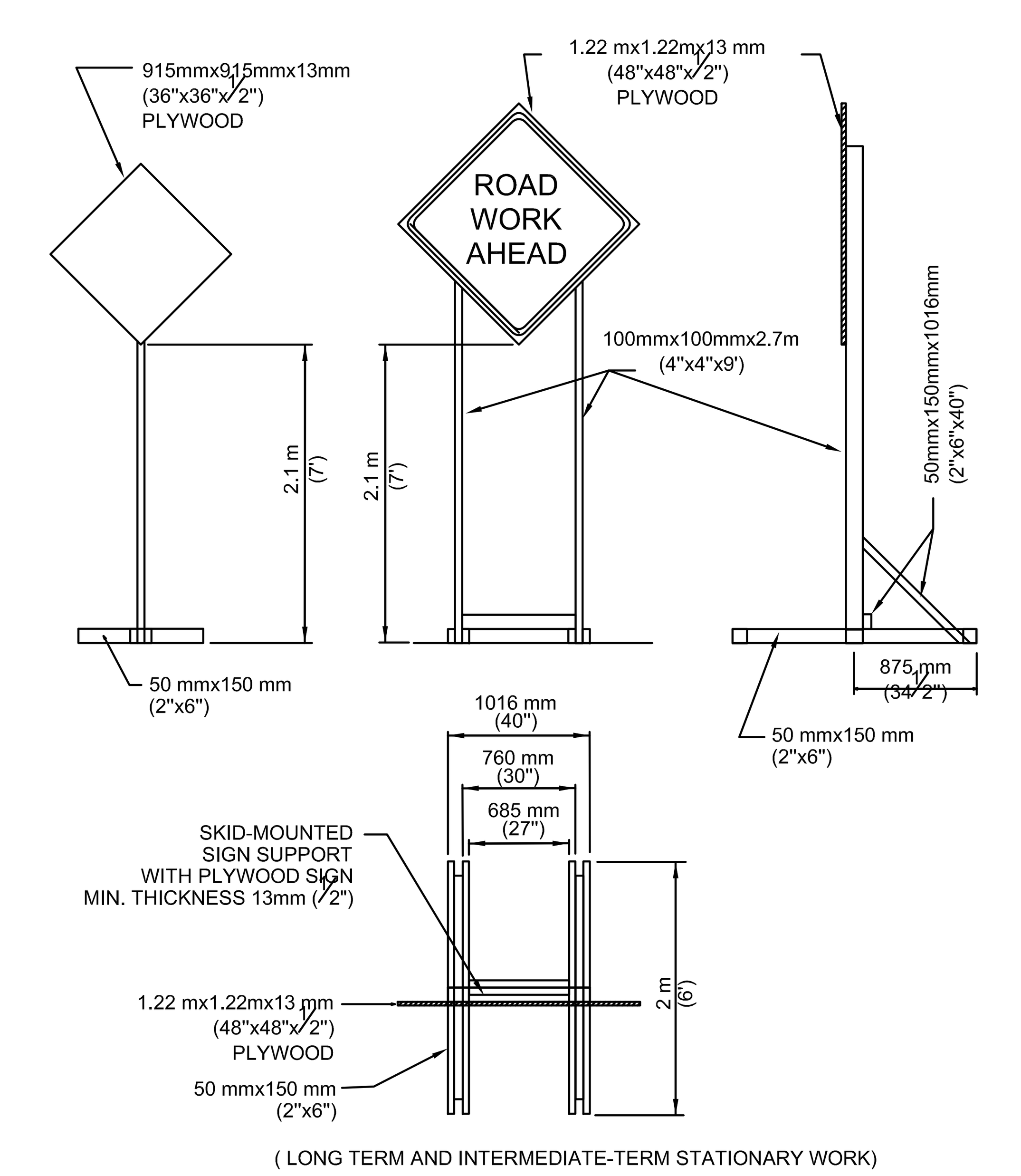
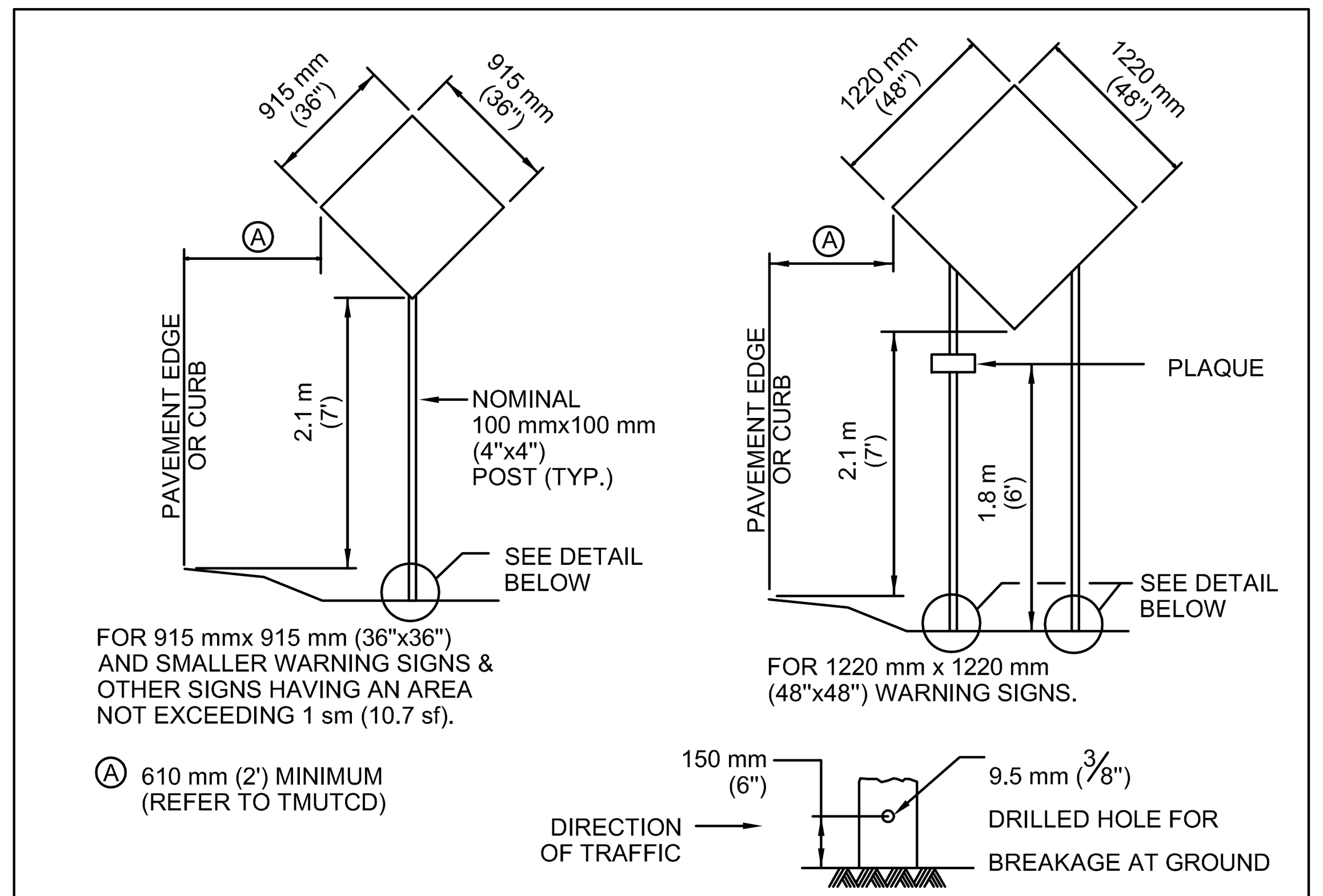


(LONG TERM AND INTERMEDIATE-TERM STATIONARY WORK)

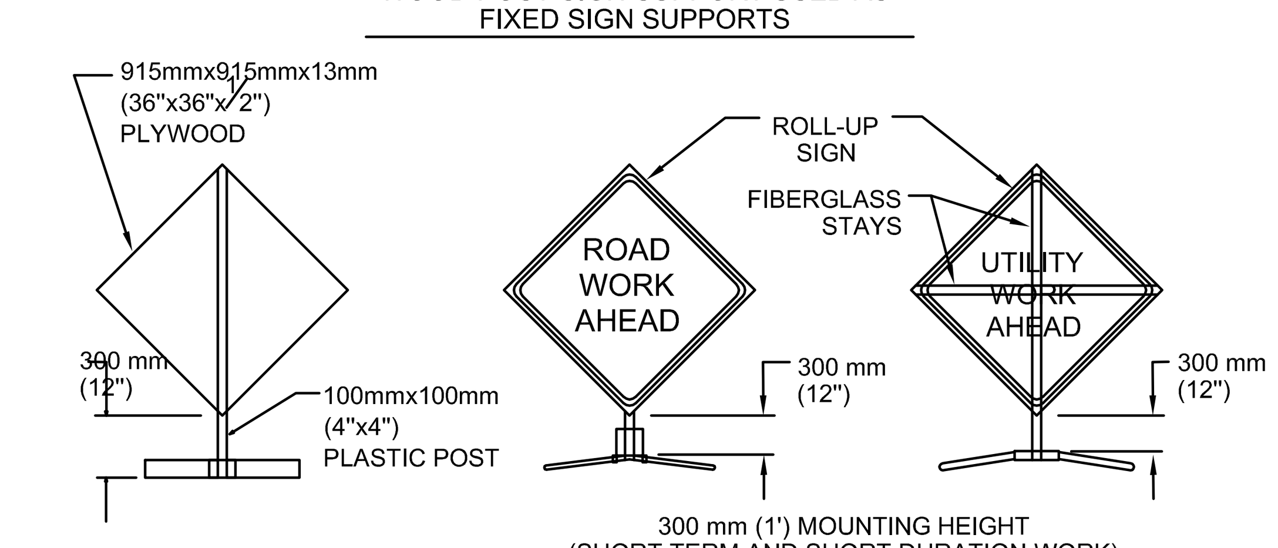
TEMPORARY SIGN SUPPORT

SEE STANDARD 804S-5
SHEET 12 OF 13 AND SHEET 13 OF 13
FOR GENERAL NOTES AND DEVICE SPACING.

CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	TRAFFIC CONTROL SIGNS	
RECORD COPY SIGNED BY SAM ANGOORI — *01/04/10* ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 804S-5 5 OF 13



WOOD POST SIGN SUPPORT USED AS FIXED SIGN SUPPORTS



300 mm (1') MOUNTING HEIGHT
(SHORT TERM AND SHORT DURATION WORK)

PORTABLE SIGN SUPPORT

SEE STANDARD 804S-5
SHEET 12 OF 13 AND
SHEET 13 OF 13 FOR
GENERAL NOTES AND DEVICE SPACING.

CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	TRAFFIC CONTROL SIGNS	
RECORD COPY SIGNED BY SAM ANGOORI — *01/04/10* ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 804S-5 6 OF 13

1. WARNING SIGNS SHALL BE ORANGE, FLUORESCENT RED-ORANGE OR FLUORESCENT YELLOW-ORANGE IN COLOR. THE FLUORESCENT VERSIONS OF ORANGE PROVIDE HIGHER CONSPICUITY THAN STANDARD ORANGE, ESPECIALLY DURING TWILGHT. ALL SIGNS USED AT NIGHT SHALL BE EITHER RETRORE-FLECTIVE, WITH A MATERIAL THAT HAS A SMOOTH, SEALED OUTER SURFACE, OR ILLUMINATED TO SHOW SIMILAR SHAPE AND COLOR BOTH DAY AND NIGHT. SIGN ILLUMINATION MAY BE EITHER IN-TERNAL OR EXTERNAL. ROADWAY LIGHTING DOES NOT MEET THE REQUIREMENTS FOR SIGN ILLUMINATION.
2. TYPE A FLASHING WARNING LIGHTS MAY BE USED IN CONJUNCTION WITH SIGNS AT NIGHT. STANDARD ORANGE FLAGS MAY BE USED FOR DAY TIME OPERATIONS. HOWEVER, NEITHER LIGHTS NOR FLAGS MAY BLOCK THE SIGN LEGEND.
3. SIGNS SHOULD BE LOCATED ON THE RIGHT-HAND SIDE OF THE ROADWAY. WHEN SPECIAL EMPHASIS IS NEEDED, SIGNS MAY BE PLACE ON BOTH THE LEFT AND RIGHT SIDES OF ROADWAY. SIGNS SHALL BE PLACED ON BOTH THE LEFT AND RIGHT SIDES OF ONE-WAY OR DIVIDED ROADWAYS. SIGNS USED FOR LONG-TERM STATIONARY AND INTERMEDIATE-TERM STATIONARY WORK SHALL BE MOUNTED AT A HEIGHT OF AT LEAST 2.1 m (7'), MEASURED FROM THE BOTTOM OF THE SIGN. THE HEIGHT TO THE BOTTOM OF A SECONDARY SIGN MOUNTED BELOW ANOTHER SIGN MAY BE O.3 m (1') LESS THAN THE APPROPRIATE HEIGHT ABOVE.
4. SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS FOR SHORT-TERM, SHORT DURATION, MOBILE CON-DITIONS AND EMERGENCIES. SIGNS MOUNTED ON PORTABLE SUPPORTS SHALL BE AT A HEIGHT OF AT LEAST 0.3 m (1'), MEASURED FROM THE BOTTOM OF THE SIGN.
5. ALL SIGN SYSTEMS SHOULD BE CRASHWORTHY. NO SIGN MOUNTS SHALL BLOCK OR IMPEDE SIDEALKS UNLESS NO OTHER OPTION IS AVAILABLE. ONLY SANDBAGS SHOULD BE USED FOR BALLASTING SIGN MOUNTS.

TABLE VI-3 TYPICAL CONSTRUCTION WARNING SIGN SIZE AND SPACING

Roadway Classification	Posted Speed	Sign Spacing	Long-term Stationary Or Intermediate-term Stationary Approaching Warning Signs CW20 Series And CW22-1 Sign		Short-term Stationary Or Short Duration Approach Warning Signs CW22 Series		Other Warning Signs
			Standard	Minimum[4]	Standard	Minimum[4]	Standard
Conven.	KPH (MPH)	meter (feet)	mm (inches)	mm (inches)	mm (inches)	mm (inches)	mm (inches)
	50 (30)	40 (120)	1220x1220 (48x48)	915x915 (36x36)			
	55 (35)	50 (160)			915x915 (36x36)		915x915 (36x36)
	65 (40)	75 (240)					
	70 (45)	100 (320)		Use Standard Size		Use Standard Size	
	80 (50)	120 (400)					
	90 (55)	150 (500) 2					
	100 (60)	180 (600) 2			1220x1220 (48x48)		1220x1220 (48x48)
	105 (65)	210 (700) 2					
	115 (70)	240 (800) 2					
Exp. or Fwy		3					

MINIMUM DISTANCE FROM WORK TO 1st ADVANCE WARNING SIGN AND/OR DISTANCE BETWEEN EACH ADDITIONAL SIGN.

FOR TYPICAL SIGN SPACINGS ON EXPRESSWAYS AND FREEWAYS, REFER TO THE CURRENT ADDITION OF TMUTCD.

SMALLER SIGN SIZES MAY BE USED WHERE SIGN DESIGNS HAVE NOT BEEN INCLUDED IN THE "STANDARD HIGHWAY SIGNS DESIGN MANUAL".

1. SPECIAL OR LARGER SIZE SIGNS MAY BE USED AS NECESSARY.
2. DISTANCE BETWEEN SIGNS SHOULD BE INCREASED AS REQUIRED TO HAVE 450 m (1500') OR MORE ADVANCE WARNING.
3. DISTANCE BETWEEN SIGNS SHOULD BE INCREASED AS REQUIRED TO HAVE A 0.8 km (½ MILE) OR MORE ADVANCE WARNING.
4. FOR USE ONLY ON SECONDARY ROADS OR CITY STREETS WHERE SPEEDS ARE LOW.

CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	TRAFFIC CONTROL SIGNS	
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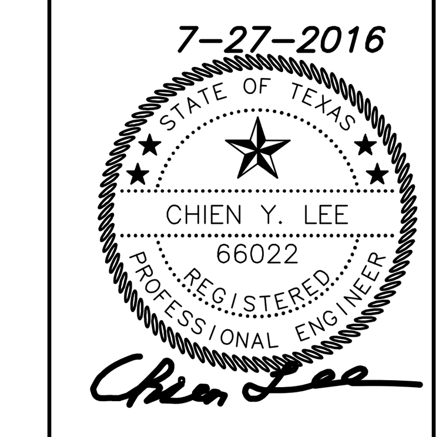

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TBPLS FIRM NO. 10058500

THE CITY OF AUSTIN
FOUR POINTS ELEVATED
RESERVOIR IMPROVEMENTS

STANDARD WATER DETAIL

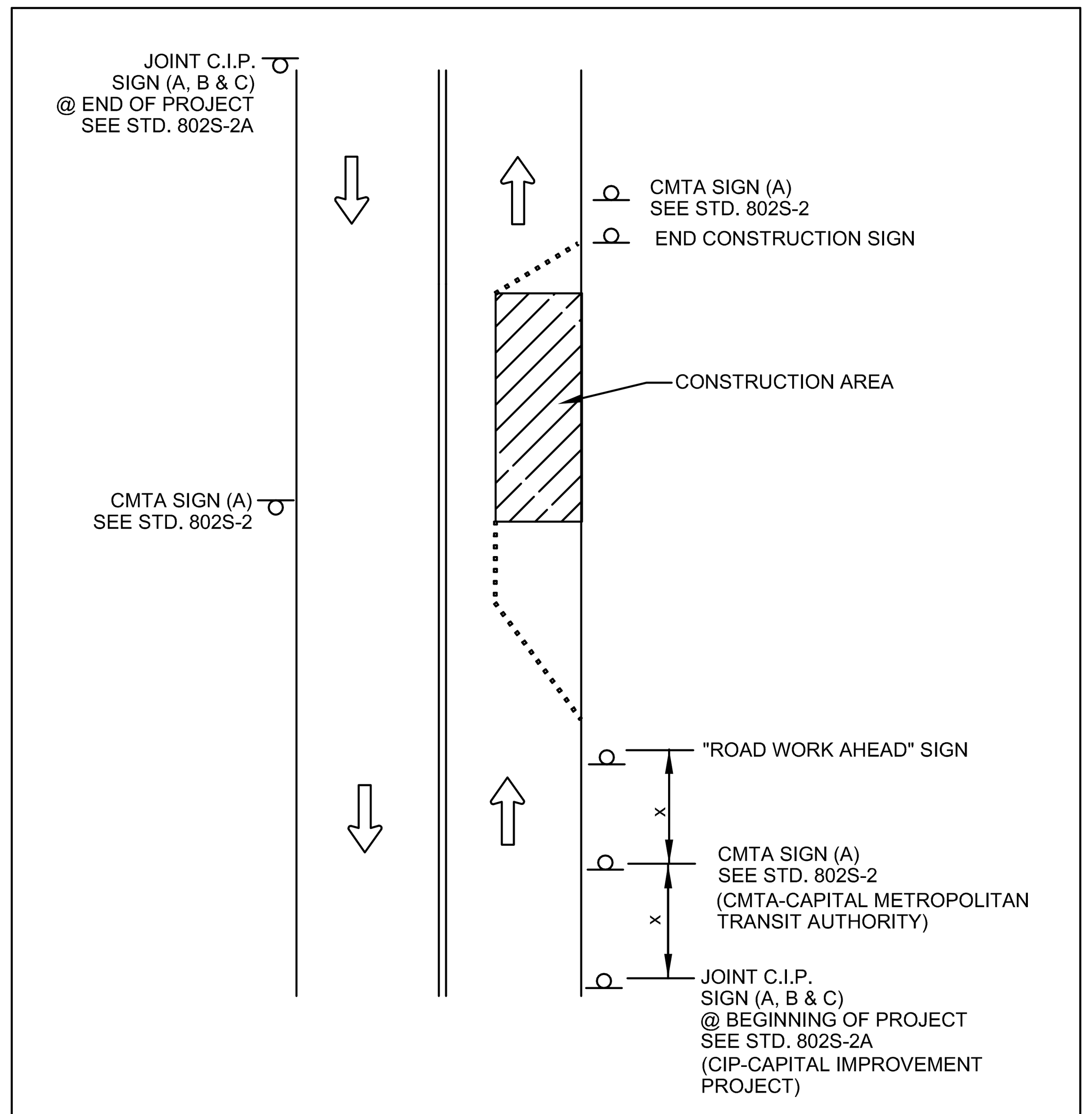
NO.	ISSUE	BY	DATE

F&N JOB NO. AU116177
DATE 8/8/2016
DESIGNED
DRAWN
REVISED
CHECKED
FILE NAME

VERIFY SCALE 0 1 — Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.

SHEET D2

SEQ.



NOTES:

1. OTHER REQUIRED SIGNS NOT SHOWN FOR CLARITY.
2. "X" DISTANCES SAME AS STANDARD TABLE SHOWN ON SHEET 13 OF 13.

SEE STANDARD 804S-5
SHEET 12 OF 13 AND SHEET 13 OF 13
FOR GENERAL NOTES AND DEVICE SPACING.

CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	TYPICAL CMTA/C.I.P. SIGN LOCATIONS	
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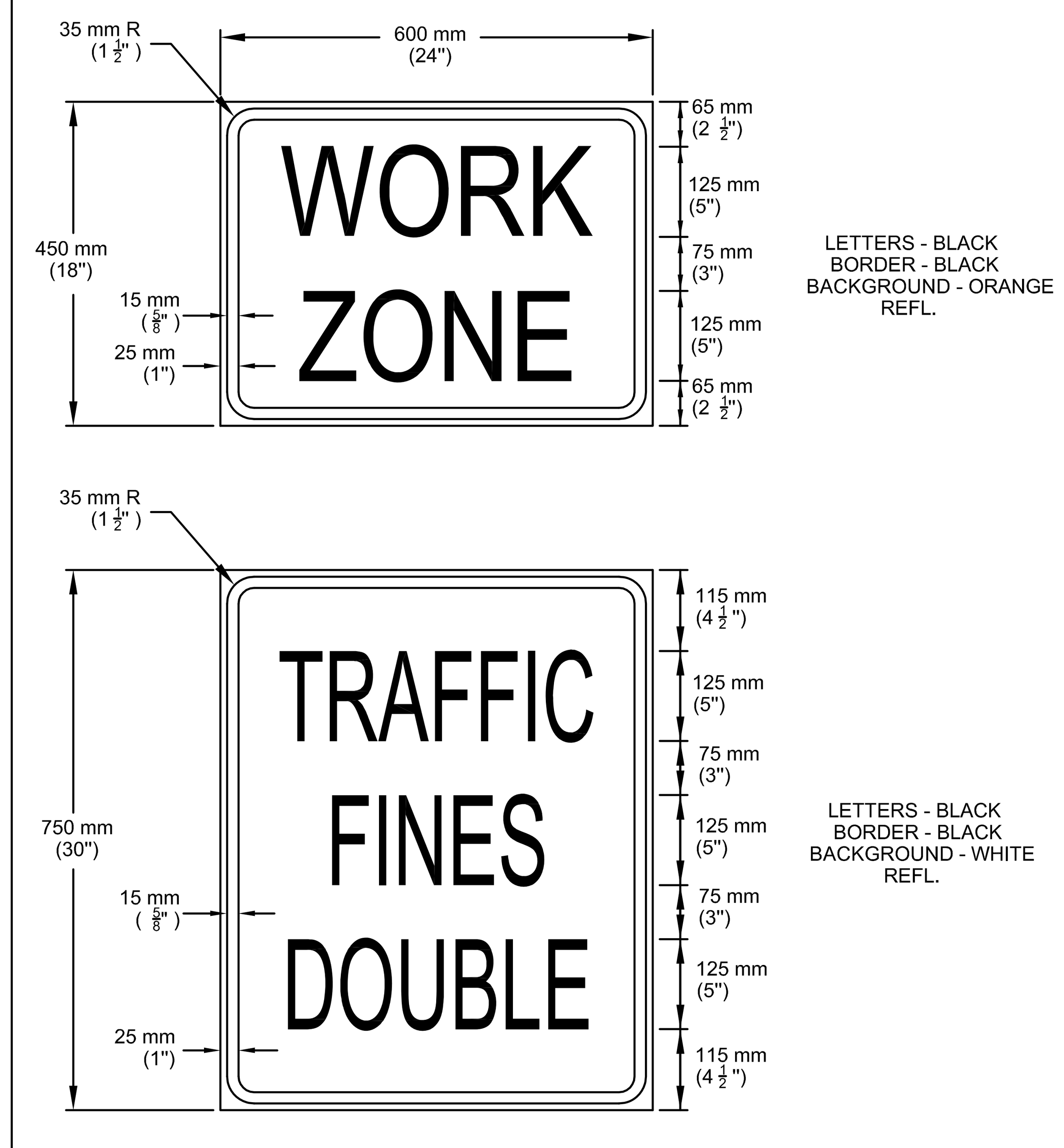
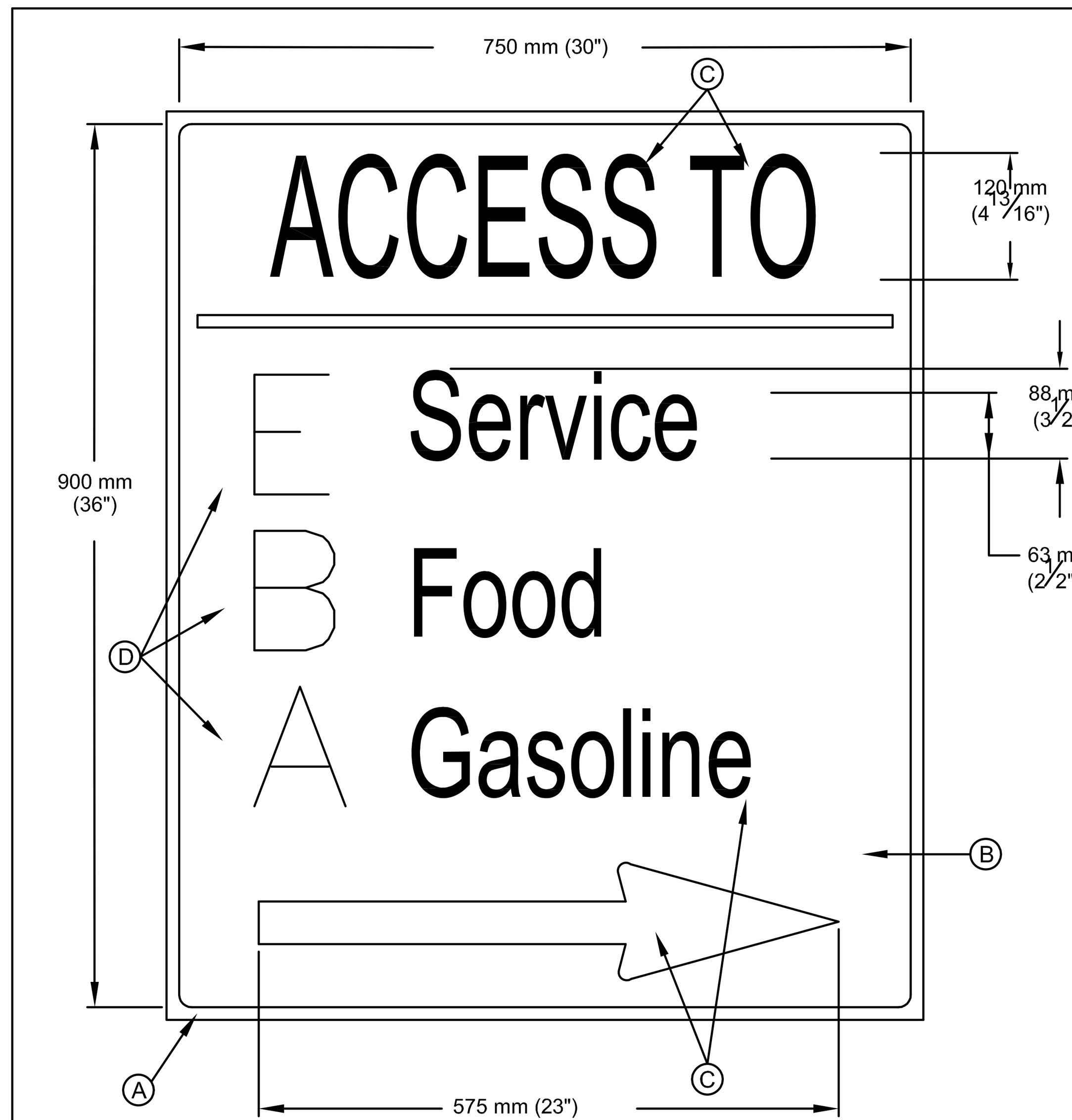


SEE STANDARD DETAIL 804S-5
SHEET 5 OF 13 FOR SKID-
MOUNTED SIGN SUPPORT.

CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	SPECIAL WORK ZONE SIGNS	
RECORD COPY SIGNED BY SAM ANGOORI 01/04/10 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 804S-5 9 OF 13



(A) 50 mm (1/2") WHITE RETROREFLECTIVE BORDER
(B) BLUE RETROFEFLECTIVE BACKGROUND
(C) WHITE RETROREFLECTIVE ARROW AND LETTERS
(D) WHITE RETROREFELCTIVE BUSINESS LOGO

NOTES:

1. CONTRACTORS CAN MAKE BUSINESS NAMES REMOVABLE/CHANGEABLE AS AN OPTION.
2. BUSINESS LOGO ARE OPTIONAL. IF USED LETTERING MUST BE MINIMIZED.

CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	SPECIAL WORK ZONE SIGNS	
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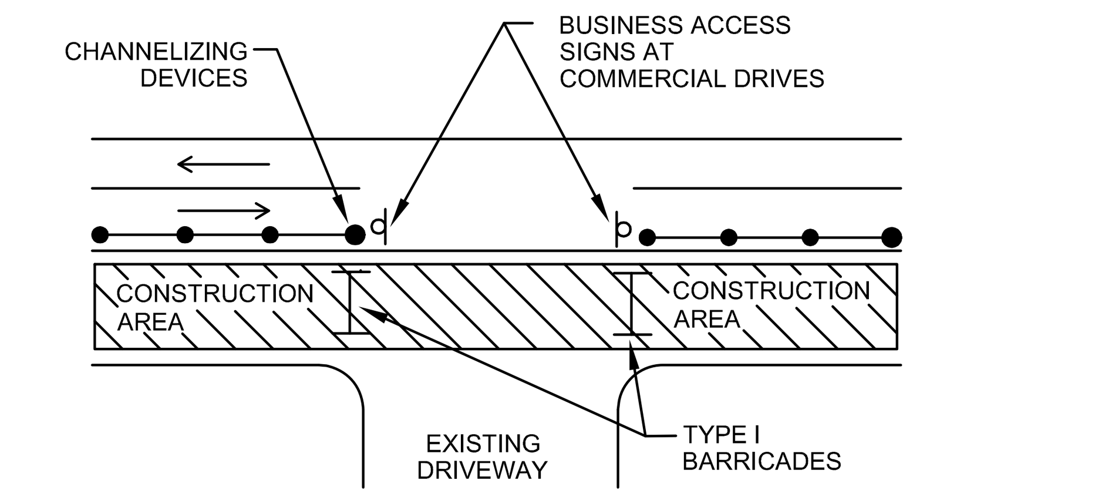
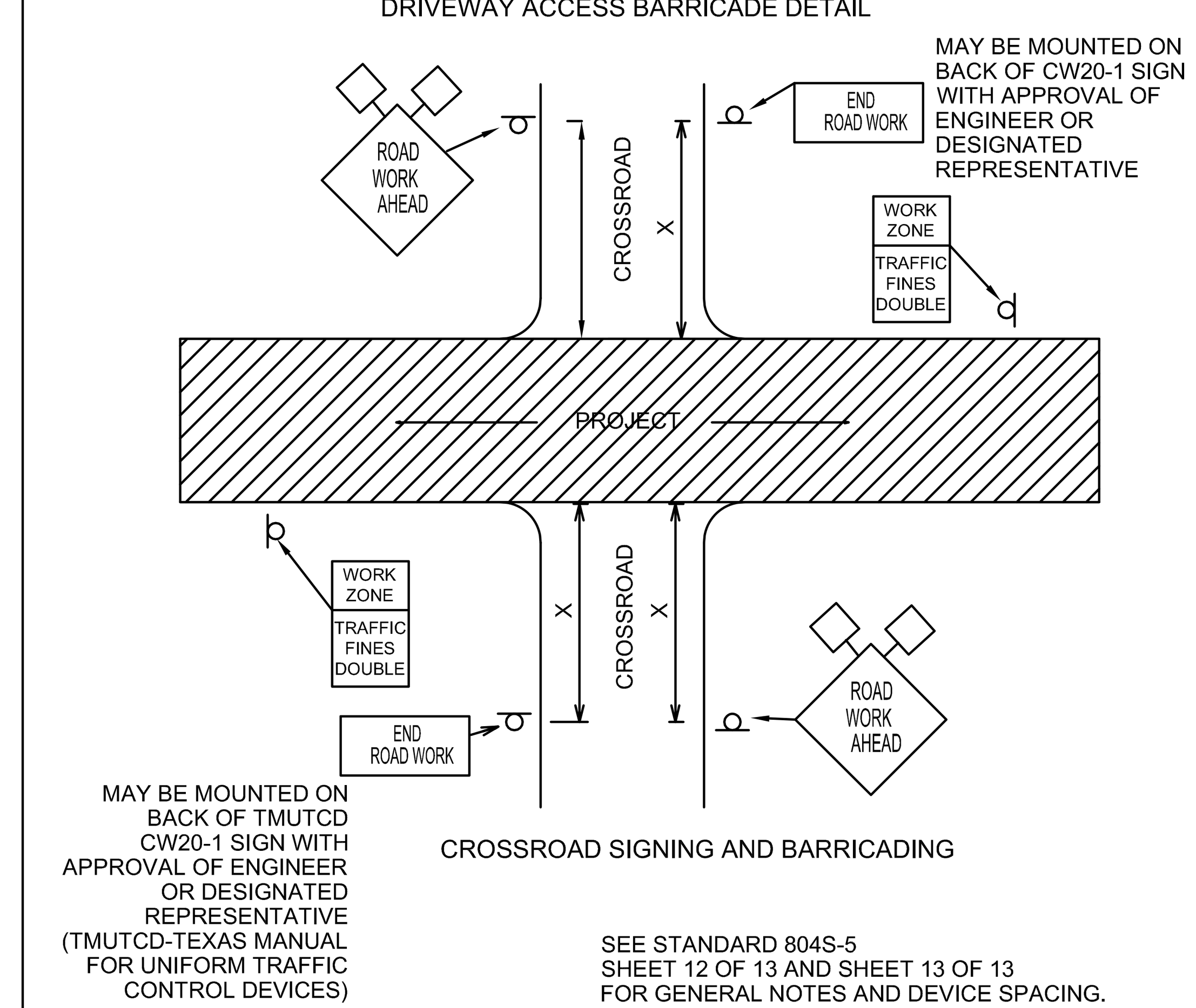


DRIVEWAY ACCESS BARRICADE DETAIL



CROSSROAD SIGNING AND BARRICADING

SEE STANDARD 804S-5
SHEET 12 OF 13 AND SHEET 13 OF 13
FOR GENERAL NOTES AND DEVICE SPACING.

CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	SIGNING AND BARRICADING CROSSROAD & DRIVEWAY	
RECORD COPY SIGNED BY SAM ANGOORI 01/04/10 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 804S-5 11 OF 13

1. ALL TRAFFIC CONTROL DEVICES, SIGNS, BARRICADES AND WARNING SIGNS SHALL BE FURNISHED, PLACED, CONSTRUCTED AND MAINTAINED IN THE APPROPRIATE TYPES AND SIZES AND FLAGGER OPERATIONS EXECUTED IN ACCORDANCE WITH THE CURRENT EDITION OF THE TEXAS MANUAL ON UNIFORM CONTROL DEVICES (TMUTCD), THE CITY OF AUSTIN STANDARD SPECIFICATIONS SERIES 800 AND THE CITY OF AUSTIN TRANSPORTATION CRITERIA MANUAL, OR AS DIRECTED BY THE ENGINEER OR DESIGNATED REPRESENTATIVE. IF A CONFLICT ARISES THEN THE CITY OF AUSTIN TRANSPORTATION CRITERIA MANUAL SHALL CONTROL UNLESS OTHERWISE INSTRUCTED BY THE ENGINEER OR DESIGNATED REPRESENTATIVE.
2. THE CONTRACTOR SHALL NOTIFY THE TRANSPORTATION DIVISION OF THE DEPARTMENT OF PUBLIC WORKS AT 974-7024 NO LATER THAN THE MONDAY OF THE WEEK DURING WHICH THE CONTRACTOR INTENDS TO SET UP BARRICADES TO START CONSTRUCTION.
3. PROPOSED CONSTRUCTION TRAFFIC MOVEMENTS MAY REQUIRE EXISTING SIGNAL HEADS TO BE RELOCATED. THE CITY OF AUSTIN WILL REVIEW SIGNAL HEAD LOCATIONS DURING CONSTRUCTION AND PERFORM THE REQUIRED ADJUSTMENTS. THE CONTRACTOR SHALL CONTACT THE TRANSPORTATION DIVISION OF THE DEPARTMENT OF PUBLIC WORKS AT 974-7024, THREE (3) DAYS PRIOR TO PLACMENT ANY TRAFFIC CONTROLS WHICH MAY REQUIRE SIGNAL HEAD ADJUSTMENTS/RELOCATION.
4. THE CONTRACTOR SHALL PROVIDE ONE (1) FULL-TIME OFF-DUTY, UNIFORMED AUSTIN POLICE DEPARTMENT CERTIFIED PEACE OFFICER AND ONE (1) VEHICLE OF THE TYPE APPROVED BY THE ENGINEER OR DESIGNATED REPRESENTATIVE FOR TEMPORARY LANE CLOSURES WHEN UNDERSEALING, MILLING, PAVING AND WHEN WORKING IN INTERSECTIONS AS PART OF THE TRAFFIC CONTROL OPERATIONS. THE PEACE OFFICER SHALL BE ABLE TO SHOW PROOF OF CERTIFICATION BY THE TEXAS COMMISSION ON LAW ENFORCEMENT OFFICER STANDARDS.
5. THE CONTRACTOR SHALL NOTIFY ALL OTHER GOVERNMENTAL AGENCIES WHOSE RIGHTS-OF-WAY ARE AFFECTED BY HIS WORK ACTIVITIES. THE CONTRACTOR SHALL PROVIDE ANY ADDITIONAL TRAFFIC CONTROL DEVICES THAT THEY MAY NEED.
6. THE CONTRACTOR SHALL MAINTAIN ONE (1) DUST-FREE LANE OF TRAFFIC IN EACH DIRECTION AT ALL TIMES, UNLESS OTHERWISE NOTED IN THE DRAWINGS OR APPROVED THE ENGINEER OR DESIGNATED REPRESENTATIVE.
7. THERE SHALL BE A MINIMUM OF THREE (3) METERS (10 FEET) CLEAR WIDTH FOR EACH LANE OF TRAFFIC IN CHANNELIZED AREAS, UNLESS OTHERWISE NOTED ON THE DRAWINGS OR APPROVED BY THE ENGINEER OR DESIGNATED REPRESENTATIVE.
8. THE CONTRACTOR SHALL MAINTAIN DRIVEWAY ACCESS AT ALL TIMES. IF ACCESS CANNOT BE MAINTAINED, THE CONTRACTOR WITH THE APPROVAL OF THE ENGINEER OR DESIGNATED REPRESENTATIVE SHALL PROVIDE AT LEAST 24 HOUR WRITTEN NOTICE OF LIMITED ACCESS TO AFFECTED PROPERTY OWNERS. THE CONTRACTOR SHALL PROVIDE BUSINESS ACCESS SIGNS AS NEEDED TO NFORM DRIVERS OF THE LOCATIONS OF ALL DRIVEWAYS.
9. TEMPORARY LANE CLOSURES IN THE CENTRAL BUSINESS DISTRICT (CBD) OR ON ARTERIAL STREETS SHALL NOT BE PERMITTED DURING THE HOURS OF 7 AM TO 9 AM AND 4 PM TO 6PM MONDAY THROUGH FRIDAY UNLESS PRIOR APPROVAL HAS BEEN OBTAINED FROM THE TRANSPORTATION DIVISION.
10. TRAFFIC CONTROL SHOWN ON STANDARD DETAILS IS TYPICAL. ADDITIONAL SIGNING AND/OR BARRICADING, AS WELL AS TEMPORARY PAVEMENT MARKINGS AND OBLITERATION/RESTORATION OF EXISTING PAVEMENT MARKINGS, MAY BE REQUIRED DEPENDING ON FIELD CONDITIONS. FIELD ADJUSTMENTS TO TRAFFIC CONTROLS WILL NOT BE PAID FOR DIRECTLY, BUT WILL BE CONSIDERED SUBSIDIARY TO ITEM NO. 803S "BARRICADES, SIGNS AND TRAFFIC HANDLING".
11. THE CONTRACTOR SHALL DESIGNATE A COMPETENT PERSON FOR TRAFFIC CONTROL. THE COMPETENT PERSON SHALL MAKE INSPECTIONS OF THE TRAFFIC CONTROL DEVICES AT LEAST TWO (2) TIMES A DAY (ONCE AT THE BEGINNING OF THE DAY AND ONCE AT THE END OF THE DAY), INCLUDING NON-WORKING DAYS, ENSURING THAT ALL DEVICES ARE IN THEIR PROPER PLACE AND ARE IN WORKING ORDER.
12. ALL DEVICES SHALL BE MADE USING MATERIALS LISTED ON THE TxDOT APPROVED PRODUCTS LIST.

CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	GENERAL TRAFFIC CONTROL NOTES	
RECORD COPY SIGNED BY SAM ANGOORI 01/04/10 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 804S-5 12 OF 13

13. ALL PERSONS WORKING WITHIN THE RIGHT-OF-WAY SHALL WEAR A BRIGHTLY COLORED SAFETY VEST. FOR NIGHTTIME WORK THE VEST SHALL BE RETROREFLECTIVE,
14. WHEN AN INTERSECTION IS CLOSED FOR CONSTRUCTION, THE CONTRACTOR SHALL PROCEED WITH CONSTRUCTION IN SUCH A MANNER THAT THE CLOSURE TIME IS MINIMIZED.
15. THE CONTRACTOR SHALL NOTIFY THE CAPITAL METRO DISPATCHER AT 385-4295 ONE (1) WEEK PRIOR TO LANE CLOSURES ADJACENT TO BUS STOPS.

DURATION OF WORK

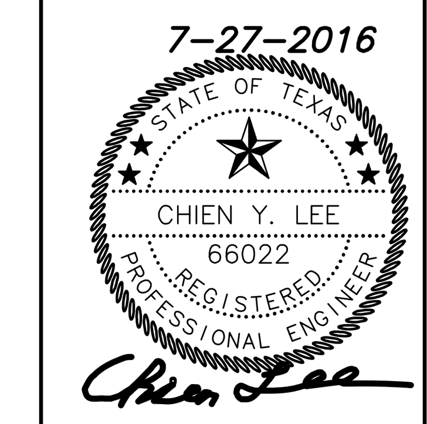
WORK DURATION IS A MAJOR FACTOR IN DETERMINING THE NUMBER AND TYPES OF DEVICES USED IN TEMPORARY TRAFFIC ZONES. THE FIVE (5) CATEGORIES OF WORK DURATION AND THEIR TIME AT A LOCATION ARE AS FOLLOWS:

- LONG-TERM STATIONARY-WORK THAT OCCUPIES A LOCATION FOR MORE THAN 3 DAYS.
- INTERMEDIATE-TERM STATIONARY-WORK THAT OCCUPIES A LOCATION FROM OVERNIGHT TO 3 DAYS.
- SHORT-TERM STATIONARY-DAYTIME WORK THAT OCCUPIES A LOCATION FROM 1 TO 12 HOURS.
- SHORT-DURATION WORK THAT OCCUPIES A LOCATION UP TO 1 HOUR.
- MOBILE-WORK THAT MOVES INTERMITTENTLY OR CONTINUOUSLY.

Typical Transition Lengths and Suggested Maximum Spacing of Devices

		Minimum Desirable Taper Lengths (L) Meters (Feet)			Suggested Max. Device Spacing		Suggested Sign Spacing Meters (Feet)
Posted Speed KPH (MPH)	Formula	3.0(10) Offset Meters (feet)	3.3(11) Offset Meters (feet)	3.6(12) Offset Meters (feet)	On a taper Meters (feet)	On a tangent Meters (feet)	"X" Dimension
50 (30)	$L=\frac{WS^2}{60}$	45 (150)	50 (165)	55 (180)	9 (30)	15-20 (60-75)	40 (120)
55 (35)		65 (205)	70 (225)	75 (245)	10 (35)	25-25 (70-90)	50 (160)
65 (40)		80 (265)	90 (295)	100 (320)	12 (40)	25-30 (80-100)	75 (240)
70 (45)	L=WS	135 (450)	(495)	165 (540)	13 (45)	25-30 (90-110)	100 (320)
80 (50)		150 (500)	165 (550)	180 (600)	15 (50)	30-35 (100-125)	120 (400)
90 (55)		165 (550)	185 (605)	200 (660)	16 (55)	35-40 (110-140)	150 (500)
100 (60)		180 (600)	200 (660)	220 (720)	18 (60)	40-45 (120-150)	180 (600)
105 (65)		195 (650)	215 (715)	235 (780)	19 (65)	40-50 (130-165)	210 (700)
115 (70)		215 (700)	235 (770)	255 (840)	21 (70)	45-55 (140-175)	240 (800)

CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	GENERAL TRAFFIC CONTROL NOTES	
RECORD COPY SIGNED BY SAM ANGOORI 01/04/10 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 804S-5 13 OF 13



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TBPLS FIRM NO. 10058500

THE CITY OF AUSTIN
FOUR POINTS ELEVATED
RESERVOIR IMPROVEMENTS

STANDARD WATER DETAIL

F&N JOB NO. AU116177
DATE 8/8/2016
DESIGNED
DRAWN
REVISED
CHECKED

NO.	ISSUE	BY	DATE

FILE NAME

VERIFY SCALE 0 1
Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.

SHEET D3

SEQ.

PROJECT SEQUENCE:
(REFER TO FULL PLAN SET FOR PROJECT–SPECIFIC ADDITIONS, IF APPLICABLE.)

PRIOR TO CONSTRUCTION:

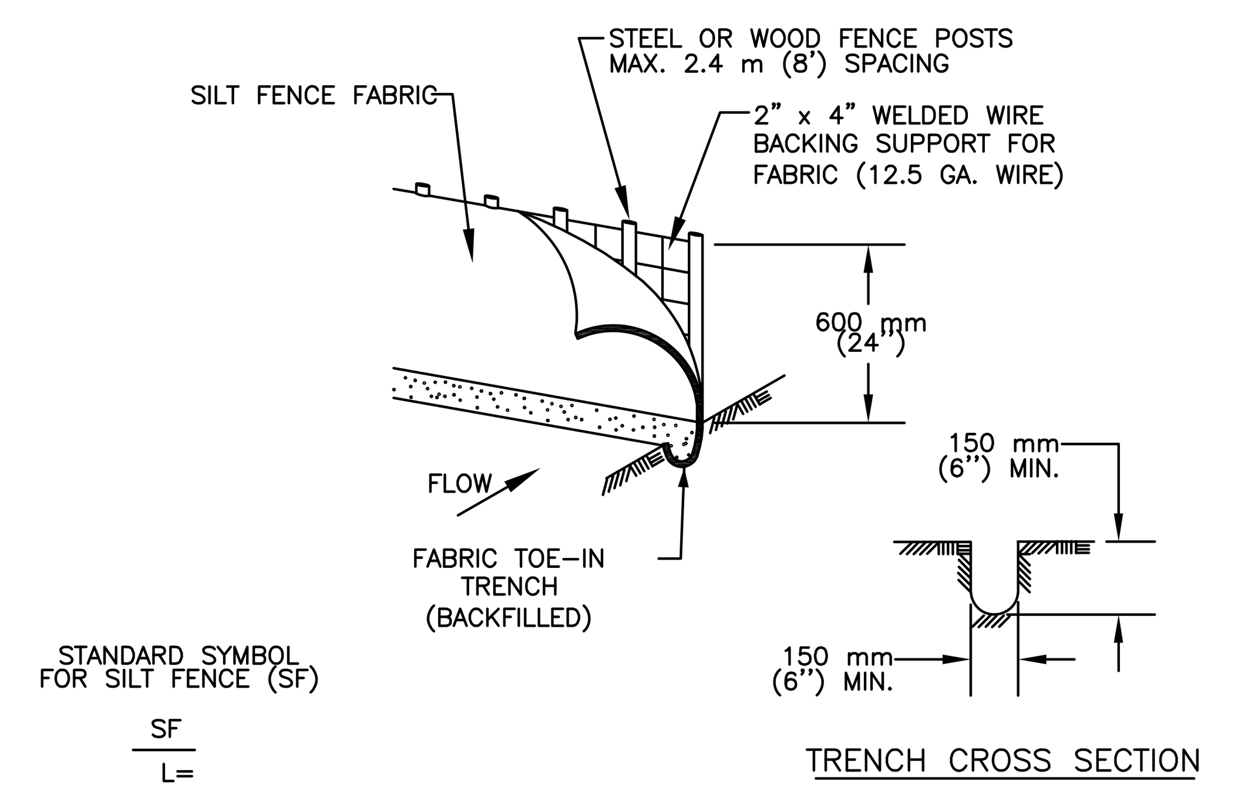
1. SECURE APPLICABLE COA PERMITS AND RIGHT–OF–WAY EXCAVATION PERMIT.
2. NOTIFY OWNER'S REPRESENTATIVE PRIOR TO PLACEMENT OF E/S CONTROLS AND TREE PROTECTION FENCING. ALL PROPOSED PHASING OF CONTROLS MUST BE SUBMITTED TO AND APPROVED BY ENGINEER PRIOR TO THE FIELD PRE–CONSTRUCTION CONFERENCE.
3. IF APPICABLE, NOTIFY COA TEMPORARY TRAFFIC CONTROL REPRESENTATIVE PRIOR TO PLACEMENT OF TEMPORARY TRAFFIC CONTROLS. ALL PROPOSED PHASING OF CONTROLS MUST BE INDICATED ON APPROVED TEMPORARY TRAFFIC CONTROL PLAN AND SEALED BY PROFESSIONAL ENGINEER.
4. PLACE TEMPORARY E/S CONTROLS AND TREE PROTECTION FENCING PRIOR TO BEGINNING ANY EXCAVATION. INSTALL C.I.P. SIGN, IF APPLICABLE.
5. HOLD ENVIRONMENTAL PRE–CONSTRUCTION CONFERENCE ON SITE WITH THE CONTRACTOR AND OWNER'S REPRESENTATIVE AFTER INSTALLATION OF E/S CONTROLS AND TREE PROTECTION FENCING AND PRIOR TO ANY TRENCHING OPERATIONS.
6. PLACE TEMPORARY TRAFFIC CONTROL DEVICES.

PROJECT CONSTRUCTION:

1. BEGIN CONSTRUCTION. NOTIFY OWNER'S REPRESENTATIVE A MINIMUM OF 48 HOURS IN ADVANCE OF TRANSITION BETWEEN PHASES.
2. CONTACT OWNER'S REPRESENTATIVE TO SCHEDULE FIELD INSPECTION PRIOR TO BEGINNING INSTALLATION OF PERMANENT E/S CONTROLS.
3. COMPLETE RESTORATION OF ALL AREAS DISTURBED BY CONSTRUCTION ACTIVITIES FOR THIS PROJECT. (PERMANENT E/S CONTROLS)
4. REMOVE TEMPORARY TRAFFIC CONTROL DEVICES RELATED TO WORK AREAS OUTSIDE OF THE STREET.
5. HOLD ENVIRONMENTAL POST–CONSTRUCTION CONFERENCE ON SITE WITH THE CONTRACTOR AND OWNER'S REPRESENTATIVE. ALL PERMANENT E/S CONTROLS MUST BE ACCEPTED BY THE OWNER'S REPRESENTATIVE. PERMANENT CONTROLS SHALL CONSIST OF REVEGETATION PER DETAILS 602, 604S, AND 609S AS INDICATED ON APPROVED PLANS.
6. FOLLOWING FINAL ACCEPTANCE OF PERMANENT E/S CONTROLS BY OWNER'S REPRESENTATIVE, REMOVE TEMPORARY E/S CONTROLS. CLEAN EXISTING STORM DRAINAGE SYSTEMS AS NECESSARY DUE TO CONSTRUCTION OPERATIONS.
7. DRESS–UP AND RESTORE ANY AREAS DISTURBED BY REMOVAL OF TEMPORARY E/S CONTROLS DESCRIBED ABOVE.

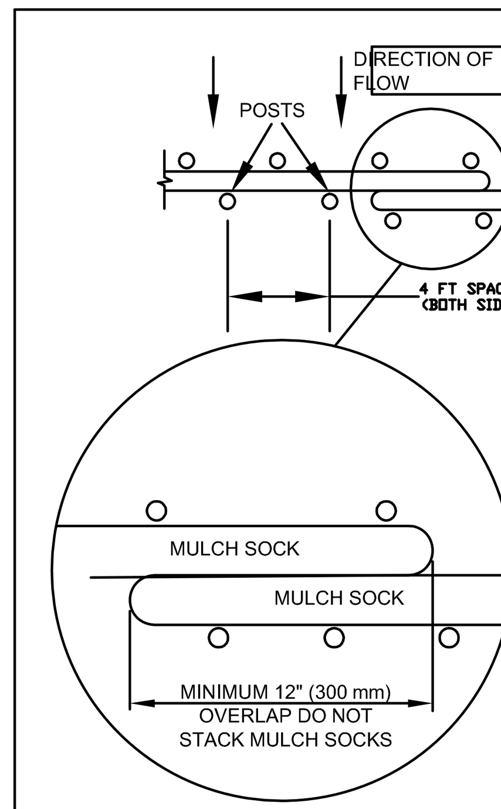
REQUIRED SUBMITTALS:

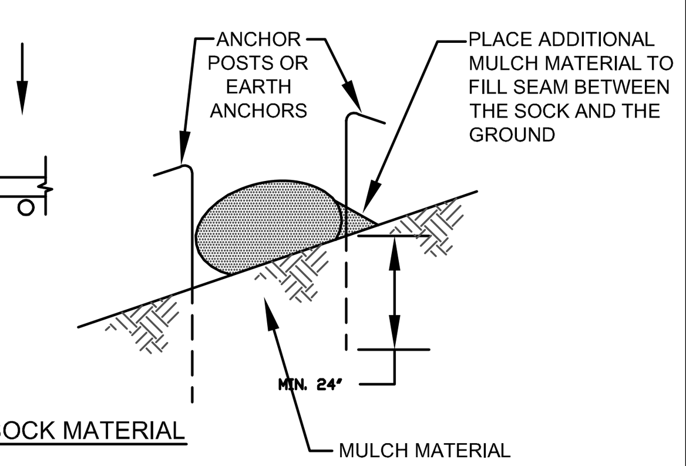
SUBMITTALS REQUIRED TO BE APPROVED BY OWNER'S REPRESENTATIVE INCLUDE: SUBMITTALS TRIGGERED BY CITY OF AUSTIN SERIES 600 SPECIFICATIONS AND RELATED SPECIAL PROVISIONS/SPECIFICATIONS, CONSTRUCTION SCHEDULE, TREE PROTECTION, P–6 AND OTHER ROOT ZONE PROTECTION/MITIGATION MEASURES, DEWATERING PLAN, WATERING SCHEDULE FOR REVEGETATION AREAS, AND ANY VEGETATIVE REPLACEMENT PROPOSALS, IF NOT ALREADY PART OF THE PERMITTED PLAN SET.



1. STEEL OR WOOD POSTS WHICH SUPPORT THE SILT FENCE SHALL BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POST MUST BE EMBEDDED A MINIMUM OF 300 mm (12 INCHES). IF WOOD POSTS CANNOT ACHIEVE 300 mm (12 inches) DEPTH, USE STEEL POSTS.
2. THE TOE OF THE SILT FENCE SHALL BE TRENCHED IN WITH A SPADE OR MECHANICAL TRENCHER, SO THAT THE DOWNSLOPE FACE OF THE TRENCH IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW.
3. THE TRENCH MUST BE A MINIMUM OF 150 mm (6 inches) DEEP AND 150 mm (6 inches) WIDE TO ALLOW FOR THE SILT FENCE FABRIC TO BE LAID IN THE GROUND AND BACKFILLED WITH COMPACTED MATERIAL.
4. SILT FENCE FABRIC SHOULD BE SECURELY FASTENED TO EACH STEEL OR WOOD SUPPORT POST OR TO WOVEN WIRE , WHICH IS IN TURN ATTACHED TO THE STEEL OR WOOD FENCE POST.
5. INSPECTION SHALL BE MADE WEEKLY OR AFTER EACH RAINFALL EVENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTY AS NEEDED.
6. SILT FENCE SHALL BE REMOVED WHEN THE SITE IS COMPLETELY STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.
7. ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF 150 mm (6 inches). THE SILT SHALL BE DISPOSED OF ON AN APPROVED SITE AND IN SUCH A MANNER THAT WILL NOT CONTRIBUTE TO ADDITIONAL SILTATION.

CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	SILT FENCE	
RECORD COPY SIGNED BY MORGAN BYARS — 09/01/2011 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 642S–1





MULCH SOCK MATERIAL

USE UNTREATED WOOD CHIPS PRODUCED FROM A 3 (THREE) INCH MINUS SCREENING PROCESS (EQUIVALENT TO TXDOT ITEM 161, COMPOST, SECTION 1.6.2.B, WOOD CHIP REQUIREMENTS).

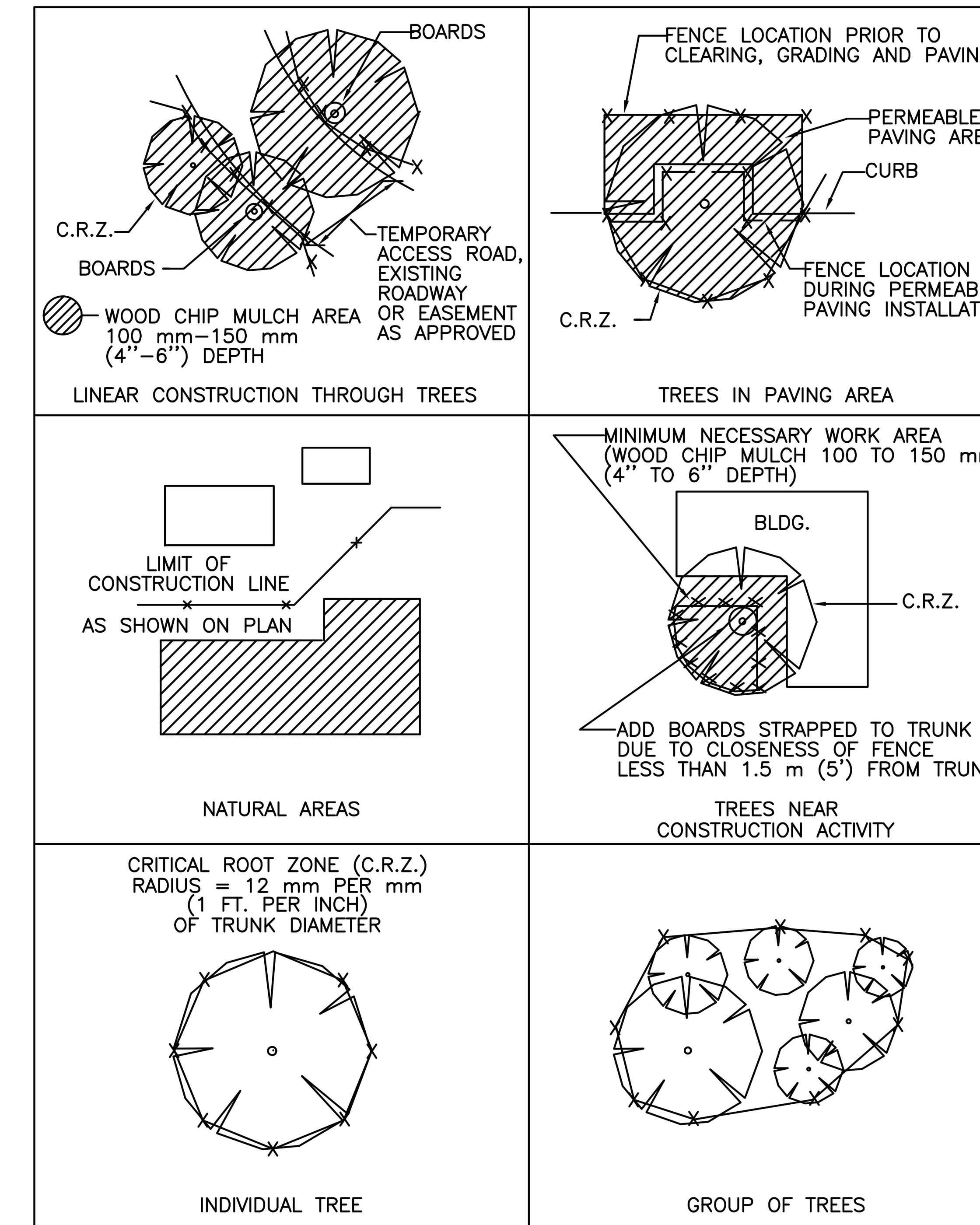
MULCH CONSISTS PRIMARILY OF ORGANIC MATERIAL, SEPARATED AT THE POINT OF GENERATION, AND MAY INCLUDE: SHREDDED BARK, STUMP GRINDINGS, OR COMPOSTED BARK.

LARGE PORTIONS OF SILT, CLAYS, OR FINE SANDS ARE NOT ACCEPTABLE IN THE MULCH.

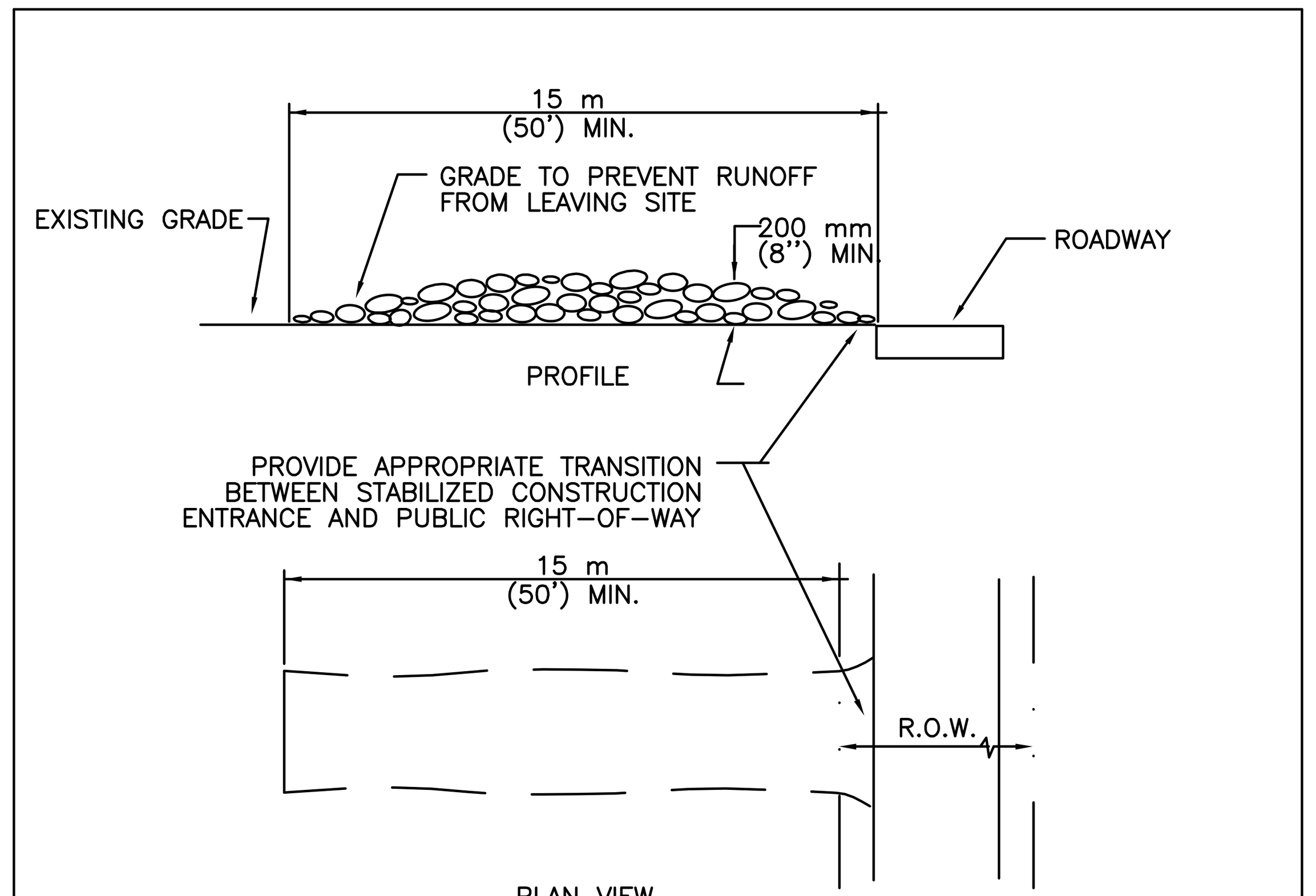
NOTES:

1. STEEL OR WOOD POSTS WHICH SUPPORT THE MULCH SOCK SHALL BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POST MUST BE EMBEDDED A MINIMUM OF 600mm (24 inches). IF WOOD POSTS CANNOT ACHIEVE 600mm (24 inches) DEPTH, USE STEEL POSTS. EARTH ANCHORS ARE ALSO ACCEPTABLE.
2. THE TOE OF THE MULCH SOCK SHALL BE PLACED SO THAT THE MULCH SOCK IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW. IN ORDER TO PREVENT WATER FROM FLOWING BETWEEN THE JOINTS OF ADJACENT ENDS OFMULCH SOCKS, LAP THE ENDS OF ADJACENT MULCH SOCKS A MINIMUM OF 300mm (12 inches).
3. MULCH MATERIAL MUST BE FREE OF REFUSE, PHYSICAL CONTAMINANTS, AND MATERIAL TOXIC TO PLANT GROWTH; IT IS NOT ACCEPTABLE FOR THE MULCH MATERIAL TO CONTAIN GROUND CONSTRUCTION DEBRIS, BIOSOLIDS, OR MANURE.
4. SOCK MATERIAL WILL BE 100% BIODEGRADABLE, PHOTODEGRADABLE, OR RECYCLABLE SUCH AS BURLAP, TWINE, UV PHOTOBIODEGRADABLE PLASTIC, POLYESTER, OR ANY OTHER ACCEPTABLE MATERIAL.
5. MULCH SOCKS SHOULD BE USED AT THE BASE OF SLOPES NO STEEPER THAN 2:1 AND SHOULD NOT EXCEED THE MAXIMUM SPACING CRITERIA PROVIDED IN CITY OF AUSTIN ENVIRONMENTAL CRITERIA MANUAL TABLE 1.4.5.F.1 FOR A GIVEN SLOPE CATEGORY.
6. ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF 150mm (6 inches). THE SILT SHALL BE DISPOSED OF ON AN APPROVED SITE AND IN SUCH A MANNER THAT WILL NOT CONTRIBUTE TO ADDITIONAL SILTATION.

CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	MULCH SOCK	
RECORD COPY SIGNED BY MORGAN BYARS — 08/24/2010 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 648S–1



CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	TREE PROTECTION FENCE LOCATIONS	
RECORD COPY SIGNED BY J. PATRICK MURPHY — 11/15/99 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 610S-1

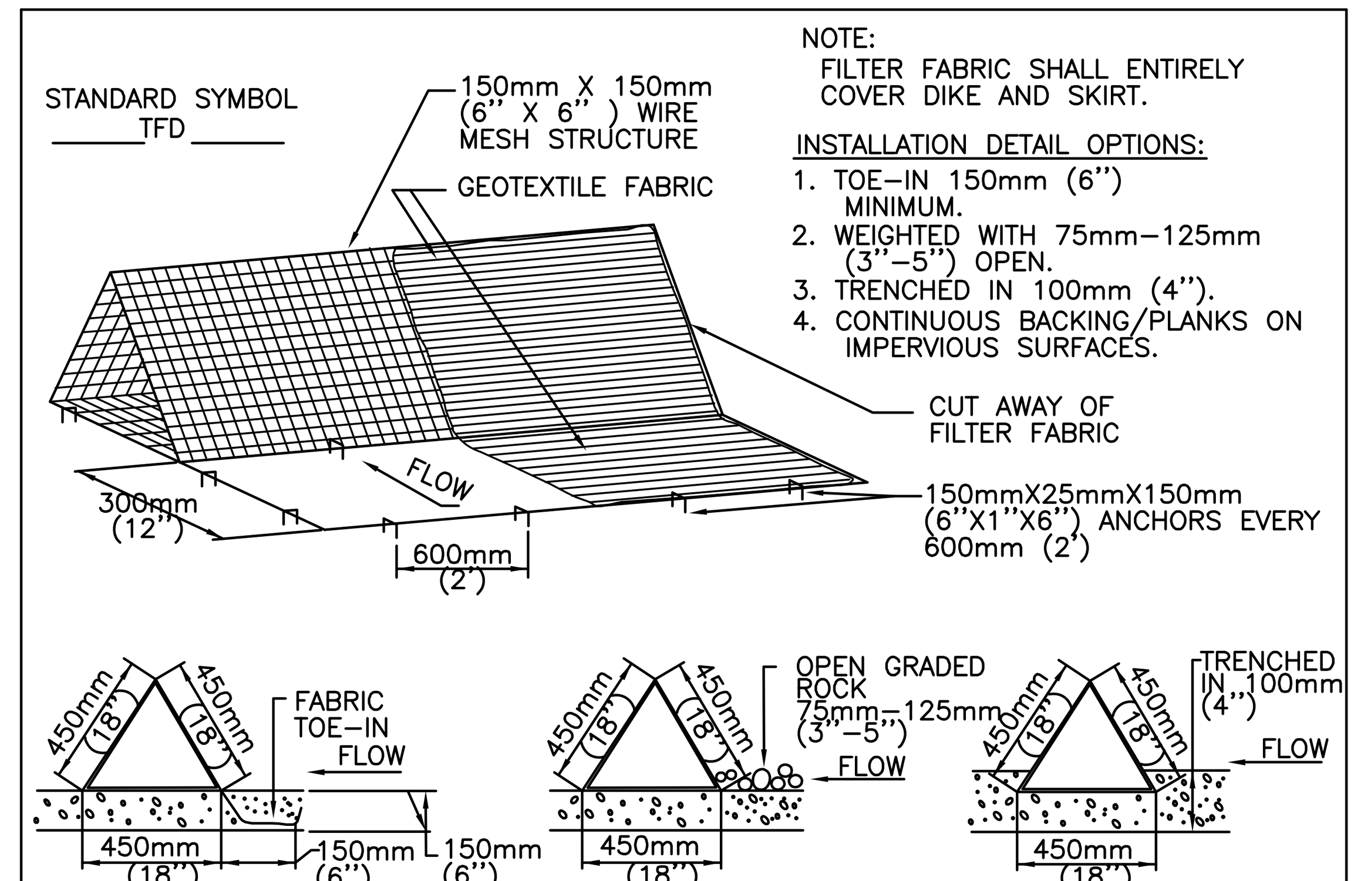


NOTES:
1. STONE SIZE: 75–125 mm (3–5") OPEN GRADED ROCK.
2. LENGTH: AS EFFECTIVE BUT NOT LESS THAN 15 m (50').
3. THICKNESS: NOT LESS THAN 200 mm (8").
4. WIDTH: NOT LESS THAN FULL WIDTH OF ALL POINTS OF INGRESS/EGRESS.
5. WASHING: WHEN NECESSARY, VEHICLE WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC ROADWAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE AND DRAINS INTO AN APPROVED TRAP OR SEDIMENT BASIN. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH OR WATERCOURSE USING APPROVED METHODS.
6. MAINTENANCE: THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC ROADWAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND, AS WELL AS REPAIR AND CLEAN OUT OF ANY MEASURE DEVICES USED TO TRAP SEDIMENT. ALL SEDIMENTS THAT IS SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC ROADWAY MUST BE REMOVED IMMEDIATELY.
7. DRAINAGE: ENTRANCE MUST BE PROPERLY GRADED OR INCORPORATE A DRAINAGE SWALE TO PREVENT RUNOFF FROM LEAVING THE CONSTRUCTION SITE.

CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	STABILIZED CONSTRUCTION ENTRANCE	
RECORD COPY SIGNED BY J. PATRICK MURPHY — 5/23/00 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 641S-1

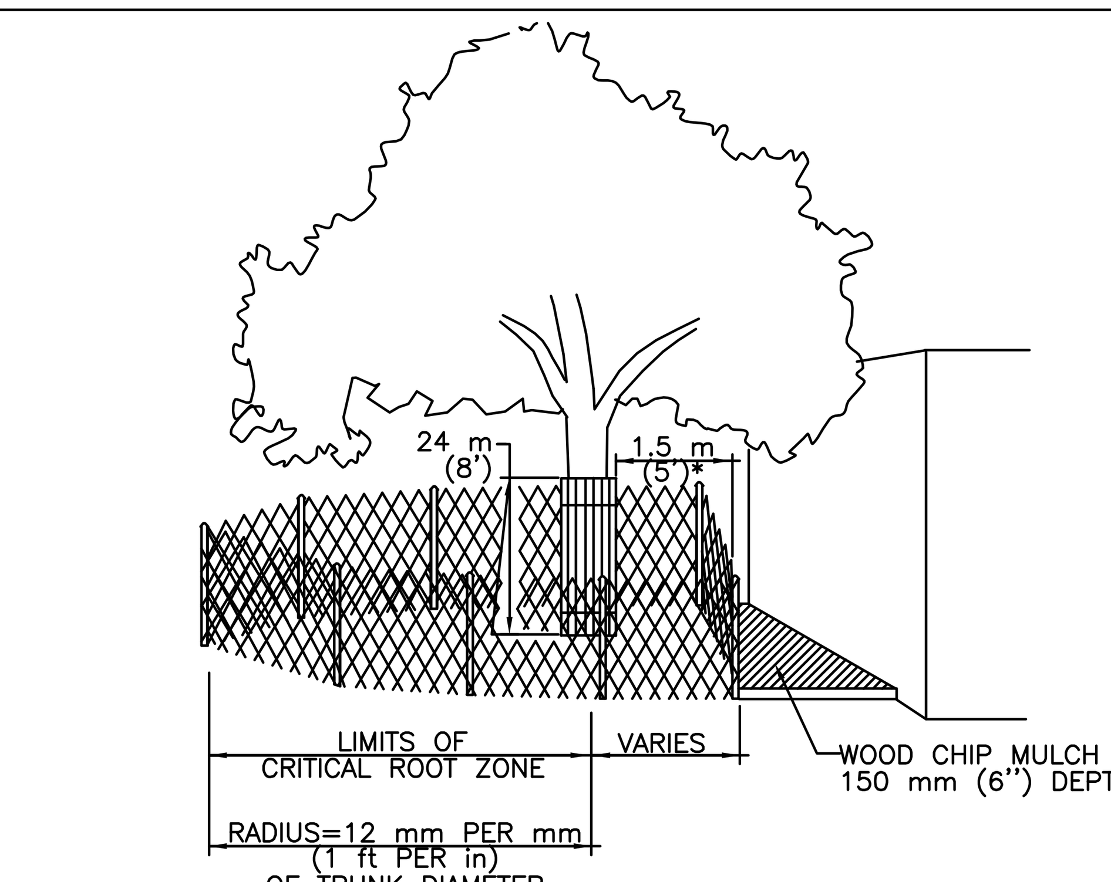
NOTE:
FILTER FABRIC SHALL ENTIRELY COVER DIKE AND SKIRT.

INSTALLATION DETAIL OPTIONS:
1. TOE–IN 150mm (6") MINIMUM.
2. WEIGHTED WITH 75mm–125mm (3"–5") OPEN.
3. TRENCHED IN 100mm (4").
4. CONTINUOUS BACKING/PLANKS ON IMPERVIOUS SURFACES.

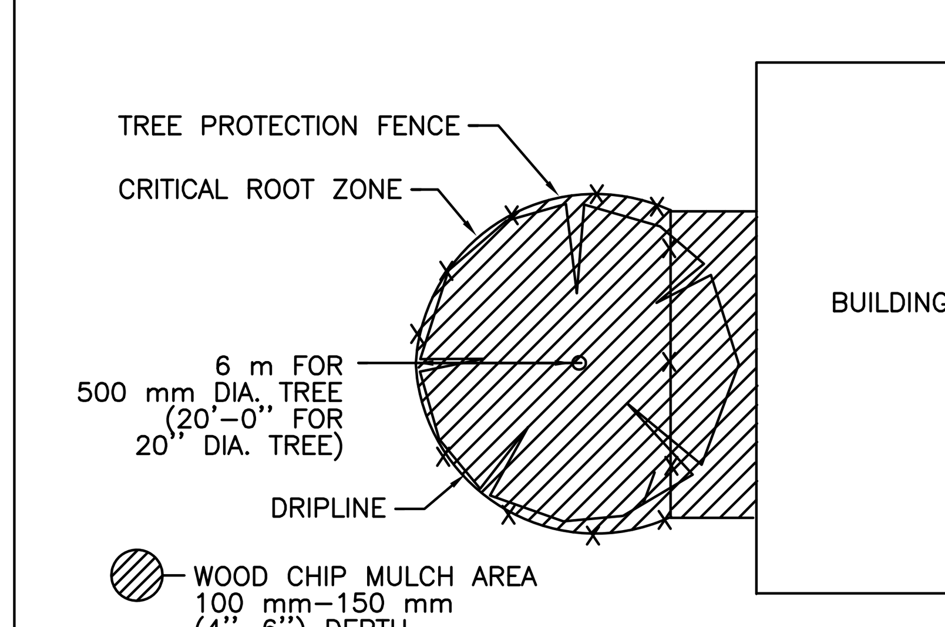


GENERAL NOTES
1. DIKES SHALL BE PLACED IN A ROW WITH ENDS TIGHTLY ABUTTING THE ADJACENT DIKE.
2. THE FABRIC COVER AND SKIRT SHALL BE A CONTINUOUS WRAPPING OF GEOTEXTILE. THE SKIRT SHALL BE A CONTINUOUS EXTENSION OF THE FABRIC ON THE UPSTREAM FACE.
3. THE SKIRT SHALL BE WEIGHTED WITH A CONTINUOUS LAYER OF 75–125mm (3–5") OPEN GRADED ROCK OR TOED–IN 150mm (6") WITH MECHANICALLY COMPACTED MATERIAL. OTHERWISE, THE ENTIRE STRUCTURE SHALL BE TRENCHED IN 100mm (4").
4. DIKES AND SKIRT SHALL BE SECURELY ANCHORED IN PLACE USING 150mm (6") WIRE STAPLES ON 600mm (2') CENTERS ON BOTH EDGES AND SKIRT, OR STAKE USING 10M (3/8 ") DIAMETER RE–BAR WITH TEE ENDS.
5. FILTER MATERIAL SHALL BE LAPPED OVER ENDS 150mm (6") TO COVER DIKE TO DIKE JOINTS. JOINTS SHALL BE FASTENED WITH GALVANIZED SHOAT RINGS.
6. THE DIKE STRUCTURE SHALL BE MW40–150mmX150mm (6 GA. 6"X6") WIRE MESH, 450mm (18") ON A SIDE.
7. INSPECTION SHALL BE MADE WEEKLY OR AFTER EACH RAINFALL EVENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED BY THE CONTRACTOR.
8. ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF 150mm (6") AND DISPOSED OF IN A MANNER WHICH WILL NOT CAUSE ADDITIONAL SILTATION.
9. AFTER THE DEVELOPMENT SITE IS COMPLETLY STABILIZED, THE DIKES AND ANY REMAINING SILT SHALL BE REMOVED. SILT SHALL BE DISPOSED OF AS INDICATED IN GENERAL NOTE 8 ABOVE.

CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	TRIANGULAR SEDIMENT FILTER DIKE	
RECORD COPY SIGNED BY J. PATRICK MURPHY — 3/27/00 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 628S



*AS NEEDED TO PROVIDE MINIMUM NECESSARY WORK SPACE. IF LESS THAN 1.5 m (5'), THEN ADD BOARDS STRAPPED TO TRUNK.

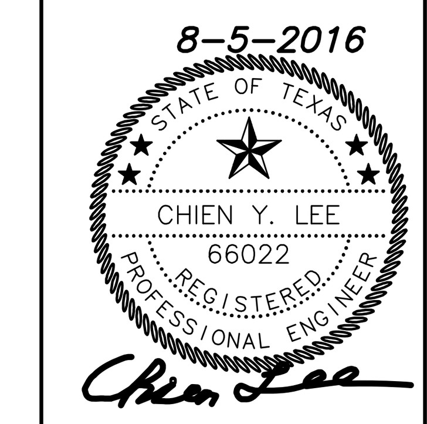


CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	TREE PROTECTION FENCE MODIFIED TYPE A - CHAIN LINK	
RECORD COPY SIGNED BY J. PATRICK MURPHY — 11/15/99 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 610S-4

NOTE(S):

1. NO TREE IS TO BE REMOVED ON THIS PROJECT.

UPDATED: 8–5–2016



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THE CITY OF AUSTIN
FOUR POINTS ELEVATED RESERVOIR IMPROVEMENTS

EROSION/SEDIMENTATION CONTROL DETAIL

F&N JOB NO. AU116177
DATE 8/8/2016
DESIGNED
DRAWN
REVISED
CHECKED
FILE NAME

NO.	ISSUE	BY	DATE

VERIFY SCALE 0 1 — Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.

SHEET ED–1
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13789–E&S_DETAIL.DWG HLA PROJ. NO. 13789

EROSION CONTROL NOTES (APPENDIX P–1)

1. The contractor shall install erosion/sedimentation controls and tree/natural area protective fencing prior to any site preparation work (clearing, grubbing or excavation).

2. The placement of erosion/sedimentation controls shall be in accordance with the Environmental Criteria Manual and the approved Erosion and Sedimentation Control Plan. The COA ESC Plan shall be consulted and used as the basis for a TPDES required SWPPP. If a SWPPP is required, it shall be available for review by the City of Austin Environmental Inspector at all times during construction, including at the Pre–Construction meeting. The checklist below contains the basic elements that shall be reviewed for permit approval by COA EV Plan Reviewers as well as COA EV Inspectors.
   – Plan sheets submitted to the City of Austin MUST show the following:
   Direction of flow during grading operations.
   Location, description, and calculations for off–site flow diversion structures.
   Areas that will not be disturbed; natural features to be preserved.
   Delineation of contributing drainage area to each proposed BMP (e.g., silt fence, sediment basin, etc.)
   Location and type of E&S BMPs for each phase of disturbance.
   Calculations for BMPs as required.
   Location and description of temporary stabilization measures.
   Location of on–site spoils, description of handling and disposal of borrow materials, and description of on–site permanent spoils disposal areas, including size, depth of fill and revegetation procedures.
   Describe sequence of construction as it pertains to ESC including the following elements:
   1. Installation sequence of controls (e.g. perimeter controls, then sediment basins, then temporary stabilization, then permanent, etc.)
   2. Project phasing if required (LOC greater than 25 acres)
   3. Sequence of grading operations and notation of temporary stabilization measures to be used
   4. Schedule for converting temporary basins to permanent WQ controls
   5. Schedule for removal of temporary controls
   6. Anticipated maintenance schedule for temporary controls
   – Categorize each BMP under one of the following areas of BMP activity as described below:
   3.1 Minimize disturbed area and protect natural features and soil
   3.2 Control Stormwater flowing onto and through the project
   3.3 Stabilize Soils
   3.4 Protect Slopes
   3.5 Protect Storm Drain Inlets
   3.6 Establish Perimeter Controls and Sediment Barriers
   3.7 Retain Sediment On–Site and Control Dewatering Practices
   3.8 Establish Stabilized Construction Exits
   3.9 Any Additional BMPs
   – Note the location of each BMP on your site map(s).
   – For any structural BMPs, you should provide design specifications and details and refer to them.
   – For more information, see City of Austin Environmental Criteria Manual 1.4.
3. The Placement of tree/natural area protective fencing shall be in accordance with the City of Austin standard Notes for Tree and Natural Area Protection and the approved Grading/Tree and Natural Area Plan.

4. A pre–construction conference shall be held on–site with the contractor, design Engineer/permit applicant and Environmental Inspector after installation of the erosion/sedimentation controls and tree/natural area protection measures and prior to beginning any site preparation work. The owner or owner's representative shall notify the Planning and Development Review Department, 974–2278, at least three days prior to the meeting date. COA approved ESC Plan and TPDES SWPPP (if required) should be reviewed by COA EV Inspector at this time.

5. Any major variation in materials or locations of controls or fences from those shown on the approved plans will require a revision and must be approved by the reviewing Engineer, Environmental Specialist or City Arborist as appropriate. Major revisions must be approved by authorized COA staff. Minor changes to be made as field revisions to the Erosion and Sedimentation Control Plan may be required by the Environmental Inspector during the course of construction to correct control inadequacies.

6. The contractor is required to provide a certified inspector with either a Certified Professional in Erosion and Sediment Control (CPESC), Certified Erosion, Sediment and Stormwater– Inspector (CESSWI) or Certified Inspector of Sedimentation and Erosion Controls (CISEC) certification to inspect the controls and fences at weekly intervals and after significant rainfall events to insure that they are functioning properly. The person(s) responsible for maintenance of controls and fences shall immediately make any necessary repairs to damaged areas. Silt accumulation at controls must be removed when the depth reaches six (6) inches.

7. Prior to final acceptance by the City, haul roads and waterway crossings constructed for temporary contractor access must be removed, accumulated sediment removed from the waterway and the area restored to the original grade and revegetated. All land clearing debris shall be disposed of in approved spoil disposal sites.

8. All work must stop if a void in the rock substrate is discovered which is; one square foot in total area; blows air from within the substrate and/or consistently receives water during any rain event. At this time it is the responsibility of the Project Manager to immediately contact a City of Austin Environmental Inspector for further investigation.

9. Temporary and Permanent Erosion Control: All disturbed areas shall be restored as noted below:
   A. All disturbed areas to be revegetated are required to place a minimum of six (6) inches of topsoil [see Standard Specification Item No. 601S.3(A)]. Do not add topsoil within the critical root zone of existing trees.
   * Topsoil salvaged from the existing site is encouraged for use, but it should meet the standards set forth in 601S.
   An owner/engineer may propose use of onsite salvaged topsoil which does not meet the criteria of Standard Specification 601S by providing a soil analysis and a written statement from a qualified professional in soils, landscape architecture, or agronomy indicating the onsite topsoil will provide an equivalent growth media and specifying what, if any, soil amendments are required.

   * Soil amendments shall be worked into the existing onsite topsoil with a disc or tiller to create a well–blended material.

The vegetative stabilization of areas disturbed by construction shall be as follows:

TEMPORARY VEGETATIVE STABILIZATION:

1. From September 15 to March 1, seeding shall be with or include a cool season cover crop: (Western Wheatgrass (*Pascopyrum smithii*) at 5.6 pounds per acre, Oats (*Avena sativa*) at 4.0 pounds per acre, Cereal Rye Grain (*Secale cereale*) at 45 pounds per acre. Contractor must ensure that any seed application requiring a cool season cover crop does not utilize annual ryegrass (*Lolium multiflorum*) or perennial ryegrass (*Lolium perenne*). Cool season cover crops are not permanent erosion control.
2. From March 2 to September 14, seeding shall be with hulled Bermuda at a rate of 45 pounds per acre or a native plant seed mix conforming to Items 604S or 609S.
   A. Fertilizer shall be applied only if warranted by a soil test and shall conform to Item No. 606S, Fertilizer. Fertilization should not occur when rainfall is expected or during slow plant growth or dormancy. Chemical fertilizer may not be applied in the Critical Water Quality Zone.
   B. Hydromulch shall comply with Table 1, below.
   C. Temporary erosion control shall be acceptable when the grass has grown at least 1½ inches high with a minimum of 95% total coverage so that all areas of a site that rely on vegetation for temporary stabilization are uniformly vegetated, and provided there are no bare spots larger than 10 square feet.
   D. When required, native plant seeding shall comply with requirements of the City of Austin Environmental Criteria Manual, and Standard Specifications 604S or 609S.

Table 1: Hydromulching for Temporary Vegetative Stabilization

MATERIAL	DESCRIPTION	LONGEVITY	TYPICAL APPLICATIONS	APPLICATION RATES
100% OR ANY BLEND OF WOOD, CELLULOSE, STRAW, AND/OR COTTON PLANT MATERIAL (EXCEPT NO MULCH SHALL EXCEED 30% PAPER)	70% OR GREATER WOOD/STRAW 30% OR LESS PAPER OR NATURAL FIBERS	0–3 MONTHS	MODERATE SLOPES; FROM FLAT TO 3:1	1,500 TO 2,000 LBS PER ACRE

PERMANENT VEGETATIVE STABILIZATION:

1. From September 15 to March 1, seeding is considered to be temporary stabilization only. If cool season cover crops exist where permanent vegetative stabilization is desired, the grasses shall be mowed to a height of less than one–half (½) inch and the area shall be re–seeded in accordance with Table 2 below. Alternatively, the cool season cover crop can be mixed with Bermudagrass or native seed and installed together, understanding that germination of warm–season seed typically requires soil temperatures of 60 to 70 degrees.

2. From March 2 to September 14, seeding shall be with hulled Bermuda at a rate of 45 pounds per acre with a purity of 95% and a minimum pure live seed (PLS) of 0.83. Bermuda grass is a warm season grass and is considered permanent erosion control. Permanent vegetative stabilization can also be accomplished with a native plant seed mix conforming to Items 604S or 609S.
   A. Fertilizer use shall follow the recommendation of a soil test. See Item 606S, Fertilizer. Applications of fertilizer (and pesticide) on City–owned and managed property requires the yearly submittal of a Pesticide and Fertilizer Application Record, along with a current copy of the applicator's license. For current copy of the record template contact the City of Austin's IPM Coordinator.
   B. Hydromulch shall comply with Table 2, below.
   C. Water the seeded areas immediately after installation to achieve germination and a healthy stand of plants that can ultimately survive without supplemental water. Apply the water uniformly to the planted areas without causing displacement or erosion of the materials or soil. Maintain the seedbed in a moist condition favorable for plant growth. All watering shall comply with City Code Chapter 6–4 (Water Conservation), at rates and frequencies determined by a licensed irrigator or other qualified professional, and as allowed by the Austin Water Utility and current water restrictions and water conservation initiatives.
   D. Permanent erosion control shall be acceptable when the grass has grown at least 1½ inches high with a minimum of 95 percent for the non–native mix, and 95 percent coverage for the native mix so that all areas of a site that rely on vegetation for stability must be uniformly vegetated, and provided there are no bare spots larger than 16 square feet.
   E. When required, native plant seeding shall comply with requirements of the City of Austin Environmental Criteria Manual, Items 604S and 609S.

Table 2: Hydromulching for Permanent Vegetative Stabilization

MATERIAL	DESCRIPTION	LONGEVITY	TYPICAL APPLICATIONS	APPLICATION RATES
BONDED FIBER MATRIX (BFM)	80% ORGANIC DEFIBRATED FIBERS			
10% TACKIFIER	6 MONTHS	ON SLOPES UP TO 2:1 AND EROSIVE SOIL CONDITIONS	2,500 TO 4,000 LBS PER ACRE (SEE MANUFACTURERS RECOMMENDATIONS)	
FIBER REINFORCED MATRIX (FRM)	65% ORGANIC DEFIBRATED FIBERS 25% REINFORCING FIBERS OR LESS 10% TACKIFIER	UP TO 12 MONTHS	ON SLOPES UP TO 1:1 AND EROSIVE SOIL CONDITIONS	3,000 TO 4,500 LBS PER ACRE (SEE MANUFACTURERS RECOMMENDATIONS)

10. DEVELOPER INFORMATION:

OWNER:

COMPANY:	AUSTIN WATER UTILITY
CONTACT:	MR. JOE B. SMITH
ADDRESS:	625 E. 10TH STREET
	AUSTIN, TEXAS 78701
PHONE:	512–972–0231
E–MAIL:	JOE.B.SMITH@AUSTINTEXAS.GOV

OWNER'S REPRESENTATIVE RESPONSIBLE FOR PLAN ALTERATIONS:

COMPANY:	HEJL, LEE & ASSOCIATES, INC.
CONTACT:	MR. CHIEN Y. LEE, P.E.
ADDRESS:	321 ED SCHMIDT BLVD., SUITE 100
	HUTTO, TEXAS 78634
PHONE:	512–642–3292
E–MAIL:	HLAINC@AUSTIN.RR.COM

PARTY RESPONSIBLE FOR EROSION/SEDIMENTATION CONTROL MAINTENANCE:
COMPANY: CONTRACTOR

PARTY RESPONSIBLE FOR TREE/NATURAL AREA PROTECTION MAINTENANCE:
COMPANY: CONTRACTOR

11. The contractor shall not dispose of surplus excavated material from the site without notifying the Planning and Development Review Department at 974–2278 at least 48 hours prior with the location and a copy of the permit issued to receive the material.

Source: **Rule No. R161–15.13. 1–4–2016 <http://newords.municode.com/readordinance.aspx?ordinanceid=750084&datasource=ordbank>.**

CITY OF AUSTIN – STANDARD NOTES TREE AND NATURAL AREA PROTECTION (APPENDIX P–2)

1. ALL TREES AND NATURAL AREAS SHOWN ON PLAN TO BE PRESERVED SHALL BE PROTECTED DURING CONSTRUCTION WITH TEMPORARY FENCING.

2. PROTECTIVE FENCES SHALL BE ERECTED ACCORDING TO CITY OF AUSTIN STANDARDS FOR TREE PROTECTION.

3. PROTECTIVE FENCES SHALL BE INSTALLED PRIOR TO THE START OF ANY SITE PREPARATION WORK (CLEARING, GRUBBING OR GRADING), AND SHALL BE MAINTAINED THROUGHOUT ALL PHASES OF THE PROJECT.

4. EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE INSTALLED OR MAINTAINED IN A MANNER WHICH DOES NOT RESULT IN SOIL BUILD–UP WITHIN TREE DRIP LINES.

5. PROTECTIVE FENCES SHALL SURROUND THE TREES OR GROUP OF TREES AND WILL BE LOCATED AT THE OUTERMOST LIMIT OF BRANCHES (DRIP LINE). FOR NATURAL AREAS, PROTECTIVE FENCES SHALL FOLLOW THE LIMIT OF CONSTRUCTION LINE, IN ORDER TO PREVENT THE FOLLOWING:

   A. SOIL COMPACTION IN THE ROOT ZONE AREA RESULTING FROM VEHICULAR TRAFFIC OR STORAGE OF EQUIPMENT OR MATERIALS;

   B. ROOT ZONE DISTURBANCES DUE TO GRADE CHANGES (GREATER THAN 6 INCHES CUT OR FILL) OR TRENCHING NOT REVIEWED AND AUTHORIZED BY THE CITY ARBORIST;

   C. WOUNDS TO EXPOSED ROOTS, TRUNK OR LIMBS BY MECHANICAL EQUIPMENT;

   D. OTHER ACTIVITIES DETRIMENTAL TO TREES SUCH AS CHEMICAL STORAGE, CEMENT TRUCK CLEANING, AND FIRES.

6. EXCEPTIONS TO INSTALLING PROTECTIVE FENCES AT TREE DRIP LINES MAY BE PERMITTED IN THE FOLLOWING CASES:

   A. WHERE THERE IS TO BE AN APPROVED GRADE CHANGE, IMPERMEABLE PAVING SURFACE, TREE WELL, OR OTHER SUCH SITE DEVELOPMENT, ERECT THE FENCE APPROXIMATELY 2 TO 4 FEET BEYOND THE AREA DISTURBED;

   B. WHERE PERMEABLE PAVING IS TO BE INSTALLED WITHIN THE TREE'S DRIP LINE, ERECT THE FENCE AT THE OUTER LIMITS OF THE PERMEABLE PAVING AREA (PRIOR TO SITE GRADING SO THAT THIS AREA IS GRADED SEPARATELY PRIOR TO PAVING INSTALLATION TO MINIMIZE ROOT DAMAGE);

   C. WHERE TREES ARE CLOSE TO PROPOSED BUILDINGS, ERECT THE FENCE TO ALLOW 6 TO 10 FEET OF WORK SPACE BEWTEEN THE FENCE AND THE BUILDING

   D. WHERE THERE ARE SEVERE SPACE CONSTRAINTS DUE TO TRACT SIZE, OR OTHER SPECIAL REQUIREMENTS, CONTACT THE CITY ARBORIST AT 974–1876 TO DISCUSS ALTERNATIVES.

SPECIAL NOTE: FOR THE PROTECTION OF NATURAL AREAS, NO EXCEPTIONS TO INSTALLING FENCES AT THE LIMIT OF CONSTRUCTION LINE WILL BE PERMITTED.

7. WHERE ANY OF THE ABOVE EXCEPTIONS RESULT IN A FENCE BEING CLOSER THAN 4 FEET TO A TREE TRUNK, PROTECT THE TRUNK WITH STRAPPED–ON PLANKING TO A HEIGHT OF 8 FEET (OR TO THE LIMITS OF LOWER BRANCHING) IN ADDITION TO THE REDUCED FENCING PROVIDED.

8. TREE APPROVED FOR REMOVAL SHALL BE REMOVED IN A MANNER WHICH DOES NOT IMPACT TREES TO BE PRESERVED.

9. ANY ROOTS EXPOSED BY CONSTRUCTION ACTIVITY SHALL BE PRUNED FLUSH WITH THE SOIL. BACKFILL ROOT AREAS WITH GOOD QUALITY TOP SOIL AS SOON AS POSSIBLE. IF EXPOSED ROOT AREAS ARE NOT BACKFILLED WITHIN 2 DAYS, COVER THEM WITH ORGANIC MATERIAL IN A MANNER WHICH REDUCES SOIL TEMPERATURE AND MINIMIZES WATER LOSS DUE TO EVAPORATION.

10. ANY TRENCHING REQUIRED FOR THE INSTALLATION OF LANDSCAPE IRRIGATION SHALL BE PLACED AS FAR FROM EXISTING TREE TRUNKS AS POSSIBLE.

11. NO LANDSCAPE TOPSOIL DRESSING GREATER THAN 4 INCHES SHALL BE PERMITTED WITHIN THE DRIPLINE OF TREES. NO SOIL IS PERMITTED ON THE ROOT FLARE OF ANY TREE.

12. PRUNING TO PROVIDE CLEARANCE FOR STRUCTURES, VEHICULAR TRAFFIC AND EQUIPMENT SHALL TAKE PLACE BEFORE DAMAGE OCCURS (RIPPING OF BRANCHES ETC).

13. ALL FINISHED PRUNING MUST BE DONE ACCORDING TO RECOGNIZED, APPROVED STANDARDS OF THE INDUSTRY (REFER TO THE NATIONAL ARBORIST ASSOCIATION PRUNING STANDARDS FOR SHADE TREES AVAILABLE ON REQUEST FROM THE GENERAL PERMIT PROGRAM OFFICE).

14. DEVIATIONS FROM THE ABOVE NOTES MAY BE CONSIDERED ORDINANCE VIOLATIONS IF THERE IS SUBSTANTIAL NONCOMPLIANCE OR IF A TREE SUSTAINS DAMAGE AS A RESULT.

8–5–2016
STATE OF TEXAS
CHIEN Y. LEE
66022
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PROFESSIONAL ENGINEER

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TBPE FIRM NO. F–765
TBPLS FIRM NO. 10065500

THE CITY OF AUSTIN
FOUR POINTS ELEVATED RESERVOIR IMPROVEMENTS

TREE PROTECTION AND ENVIRONMENTAL NOTES

F&N JOB NO. AU116177
DATE 8/8/2016
DESIGNED
DRAWN
REVISED
CHECKED

NO.	ISSUE	BY	DATE

FILE NAME

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET ED–2
SEQ.

STRUCTURAL GENERAL NOTES

THESE GENERAL NOTES SHALL APPLY UNLESS OTHERWISE SPECIFICALLY NOTED ON PLANS AND DETAILS. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE STARTING WORK. THE ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION. DESIGN, CONSTRUCTION, WORKMANSHIP AND MATERIALS SHALL COMPLY WITH THE IBC 2012, AWWA D100 AND AWWA D107, AND CURRENT OSHA LAW AND REGULATIONS.

1. NEW AND EXISTING ITEMS SHOWN ARE LAYED OUT SCHEMATICALLY BASED ON PROXIMITY TO EXISTING STRUCTURE. EXACT SIZE AND LOCATION OF EXISTING STRUCTURES SHALL BE VERIFIED BY CONTRACTOR. INFORMATION FOR DRAWINGS WAS OBTAINED FROM RECORD DRAWINGS (URBAN ENGINEERING GROUP, INC.–1987) AND FIELD OBSERVATIONS CONDUCTED IN DECEMBER 2011, JANUARY 2012, AND FEBRUARY 2016.
2. THE STRUCTURAL DRAWINGS ARE NOT TO BE SCALED FOR DETERMINATION OF QUANTITIES, LENGTHS, OR FIT OF MATERIALS.
3. THE STRUCTURAL DRAWINGS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE METHODS OF CONSTRUCTION UNLESS SO STATED OR NOTED. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY TO PROTECT THE WORKMEN AND ALL OTHER PERSONS DURING CONSTRUCTION.
4. THE CONTRACTOR SHALL PROVIDE TEMPORARY BRACING AND SHORING OF ALL STRUCTURAL WORK AS REQUIRED FOR STABILITY OF THE STRUCTURE DURING ALL PHASES OF CONSTRUCTION. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY CONDITION WHICH, IN HIS/HER OPINION, MIGHT ENDANGER THE STABILITY OF THE STRUCTURE OR CAUSE DISTRESS IN THE STRUCTURE.
5. ALL EXISTING CONDITIONS AND DIMENSIONS SHALL BE FIELD VERIFIED PRIOR TO PREPARATION OF SHOP DRAWINGS AND THE BEGINNING OF THE CONSTRUCTION PROCESS.

DESIGN CRITERIA

1. LOADS :
   STRUCTURE SELF–WEIGHT INCLUDED AS DEADLOAD FOR ALL LOCATIONS.

   ROOF LEVEL :
   LIVE LOADS.....20 PSF
2. GRATING PLATFORM :
   LIVE LOADS.....100 PSF
3. FOUNDATION :
   A CURRENT GEOTECHNICAL INVESTIGATION AND SOIL REPORT ARE NOT AVAILABLE FOR THE PROJECT. BUILDING CODES (SUBJECT TO APPROVAL OF THE BUILDING OFFICIAL IN JURISDICTION) PERMITS THE USE OF PRESUMPTIVE LOAD–BEARING VALUES (REF. IBC 2012 TABLE 1806.2). THESE PRESUMPTIVE VALUES HAVE BEEN USED UNLESS NOTED OTHERWISE. WHEN REQUIRED, IT IS THE RESPONSIBILITY OF OF THE OWNER TO OBTAIN A SOIL REPORT BASED ON GEOTECHNICAL INVESTIGATION SPECIFIC FOR THIS PROJECT. SPECIAL INSPECTION MAY BE REQUIRED TO VERIFY BEARING CAPACITY OF EXISTING SOIL AT NEW SLAB–ON–GRADE OR FOOTING SUBGRADE. FOUNDATION EXCAVATIONS SHALL BE INSPECTED BY A COMPETENT SOIL ENGINEER OR OWNER REPRESENTATIVE PRIOR TO PLACEMENT OF CONCRETE. CONTRACTOR SHALL BE RESPONSIBLE FOR PREPARING SUBGRADE TO MEET MINIMUM SOIL BEARING PRESSURE VALUES AND COMPACTION REQUIREMENTS. SOIL SELECT BACKFILL OR BORROW MATERIAL PER C.O.A. STANDARD SPECIFICATION 510S. COMPACT BACKFILL MATERIAL TO 95% RELATIVE MAXIMUM DENSITY PER C.O.A. APPROVED TEST METHOD. PREPARE NEW FOOTING SUBGRADE PER C.O.A. STANDARD SPECIFICATION 201S.

   DESIGN SOIL BEARING PRESSURES :
   AT VAULT.....1500 PSF
   AT SPLASH WALLS.....1500 PSF

STRUCTURAL STEEL

1. STRUCTURAL STEEL SHALL CONFORM TO THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION'S CURRENT STANDARDS FOR STEEL CONSTRUCTION.
2. CARBON STEEL PLATES, SHAPES, AND PIPE SHALL MEET THE REQUIREMENTS OF ASTM A36.
3. STAINLESS STEEL PLATE SHALL MEET THE REQUIREMENTS OF ASTM A666, TYPE 304(L) OR 316(L) AS NOTED. STAINLESS BARS AND SHAPES SHALL MEET ASTM A276, TYPE 304(L) OR 316(L) AS NOTED. STAINLESS PIPE SHALL MEET ASTM A312, TYPE 304(L) OR 316(L) AS NOTED.
4. REFER TO SPECIFICATIONS FOR PREPARATION OF ALL STEEL SURFACES PRIOR TO COATING.
5. WELDING OF STRUCTURAL STEEL SHALL BE CONDUCTED IN ACCORDANCE WITH THE WELDING SPECIFICATION SECTION, 05121. ADDITIONAL REFERENCES INCLUDE AWWA D–100, AWWA D107 API STANDARD 650, AND API STANDARD 653 FOR ALTERATIONS OF STEEL TANKS.
6. WELDING ELECTRODES SHALL BE AS FOLLOWS:

STEEL WELDING ELECTRODE SCHEDULE	
MATERIAL	ELECTRODE TYPE
CARBON STEEL TO CARBON STEEL	AWS E–7018
AISI 304L TO CARBON STEEL	AWS E–309–Cb
AISI 304L TO AISI 304L	AWS E–308L
AISI 316L TO CARBON STEEL	AWS E–310–Mo
AISI 316L TO AISI 316L	AWS E–316L

7. CONTRACTOR SHALL REVIEW SHOP AND FIELD WELD REQUIREMENTS FOR COMPATIBILITY WITH THE CONSTRUCTION SEQUENCE PRIOR TO SHOP DRAWING SUBMITTAL. PROPOSED REVISIONS SHALL BE IDENTIFIED BY THE CONTRACTOR AND CLEARLY SHOWN ON THE SHOP DRAWINGS.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DEVELOPING A PROCEDURE THAT WILL CONTROL DISTORTION CAUSED BY WELDING AND/OR THERMAL CUTTING.
9. EXISTING SURFACES TO BE WELDED SHALL BE CLEANED OF ALL FOREIGN DEBRIS PRIOR TO WELDING.
10. ALL CONTINUOUS WELDS SHALL BE INTERMITTENT CHAIN WELDS TO PREVENT DISTORTION.
11. STAINLESS STEEL PIPE RAILING SHALL BE TYPE 316L, U.N.O., AND SHALL CONFORM TO SPECIFICATIONS AND OSHA STANDARD REGULATION 1910.23. DESIGN PARAMETERS INCLUDE:
    - A. RAILINGS SHALL HAVE AN OUTSIDE DIAMETER OF 2".
    - B. POSTS SHALL BE SPACED NO MORE THAN 8'–0" APART.
    - C. RAILS, BETWEEN POSTS, SHALL BE CURVED TO MATCH THE RADIUS SHOWN ON THE STRUCTURAL PLANS, OR MEASURED IN THE FIELD.
    - D. TOP RAILS SHALL BE CONTINUOUS WITH AN UNINTERRUPTED TOP SURFACE.
    - E. HEIGHT OF RAILING SHALL BE 3'–6" FROM THE TOP OF ROOF SURFACE OR TOP OF GRATING TO THE TOP OF THE TOP RAIL.
    - F. THE INTERMEDIATE RAIL SHALL BE APPROXIMATELY HALF–WAY BETWEEN THE TOP RAIL AND FLOOR SURFACE.
    - G. A STANDARD TOEBOARD (KICK PLATE) SHALL HAVE A 4" NOMINAL HEIGHT, CLEAR THE FLOOR SURFACE BY 1/4" MAXIMUM AND CAN BE STRAIGHT SEGMENTS BETWEEN POSTS.
    - H. RAILINGS AND POSTS SHALL BE DESIGNED TO WITHSTAND A 200 POUND CONCENTRATED LOAD IN ANY DIRECTION.
    - I. POSTS AND RAILINGS SHALL BE SHOP WELDED AND MITERED BY THE MANUFACTURER. ALL CUTS (JOINTS) SHALL BE GROUND SMOOTH.
    - J. CONTINUOUS RAILING RUNS OF 40'–0" OR MORE SHALL HAVE A MAXIMUM EXPANSION JOINT SPACING OF 24'–0". EXPANSION JOINTS SHALL OCCUR 6" FROM A POST. REF. DETAIL 206A.
12. ALL BOLTS, WASHERS, & NUTS TO BE STAINLESS STEEL TYPE 316L, UNLESS NOTED OTHERWISE
13. ALL NEW STEEL MEMBERS INSTALLED INSIDE THE WATER–CONTAINING CHAMBER OF THE RESERVOIR SHALL BE 316L STAINLESS STEEL.

STANDARD AND CODE NOTES

1. PENETRATIONS THROUGH THE EXISTING TANK WALLS / STRUCTURE SHALL COMPLY TO API STANDARD 650 AND 653 – TANK INSPECTION, ALTERATION AND RECONSTRUCTION, AS WELL AS THE PROJECT MANUAL.

DEMOLITION NOTES

1. REFER TO THE BID DOCUMENTS AND SPECIFICATIONS FOR THE EXTENT OF DEMOLITION FOR THE PROJECT.

POST–INSTALLED ANCHORS

1. POST–INSTALLED ANCHORS SHALL ONLY BE USED WHERE SPECIFIED ON THE CONSTRUCTION DOCUMENTS. CARE SHALL BE TAKEN IN PLACING POST–INSTALLED ANCHORS TO AVOID CONFLICTS WITH EXISTING REBAR. HOLES SHALL BE DRILLED AND CLEANED IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS. SUBSTITUTION REQUEST FOR PRODUCTS OTHER THAN THOSE SPECIFIED BELOW SHALL BE SUBMITTED BY THE CONTRACTOR TO THE ENGINEER–OF–RECORD ALONG WITH CALCULATIONS THAT ARE PREPARED & SEALED BY A REGISTERED PROFESSIONAL ENGINEER LICENSED IN THE STAE OF TEXAS. THE CALCULATIONS SHALL DEMONSTRATE THAT THE SUBSTITUTED PRODUCT IS CAPABLE OF ACHIEVING THE PERTINENT EQUIVALENT PERFORMANCE VALUES (MINIMUM) OF THE SPECIFIED PRODUCT USING THE APPROPRIATE DESIGN PROCEDURE AND/OR STANDARD(S) AS REQUIRED BY THE BUILDING CODE. PROVIDE CONTINUOUS SPECIAL INSPECTION FOR ALL MECHANICAL & ADHESIVE ANCHORS PER THE APPLICABLE EVALUATION REPORT. CONTACT MANUFACTURER'S REPRESENTATIVE FOR THE INITIAL TRAINING AND INSTALLATION OF ANCHORS AND FOR PRODUCT RELATED QUESTIONS AND AVAILABILITY. CALL SIMPSON STRONG–TIE AT (800) 999–5099.

   A. CONCRETE ANCHORS

   i. **MECHANICAL ANCHORS** SHALL HAVE BEEN TESTED AND QUALIFIED FOR USE IN ACCORDANCE WITH ACI 355.2 AND ICC–ES AC193 FOR CRACKED AND UNCRACKED CONCRETE RECOGNITION. PRE–APPROVED MECHANICAL ANCHORS INCLUDE:

   (1) SIMPSON STRONG–TIE "TITEN–HD" AND "TITEN–HD ROD HANGER" (ICC–ES ESR–2713)
   (2) SIMPSON STRONG–TIE "STRONG–BOLT" (ICC–ES ESR–1771)
   (3) SIMPSON STRONG–TIE "STRONG–BOLT 2" (ICC–ES ESR–3037)

   ii. **ADHESIVE ANCHORS** SHALL HAVE BEEN TESTED AND QUALIFIED FOR USE IN ACCORDANCE WITH ACI 355.4 AND ICC–ES AC308 FOR CRACKED AND UNCRACKED CONCRETE RECOGNITION. PRE–APPROVED ADHESIVE ANCHORS INCLUDE:

   (1) SIMPSON STRONG–TIE "SET–XP" (ICC–ES ESR–2508)
   NOTE : ADHESIVE RETAINING CAP (ARC) REQUIRED FOR HORIZONTAL INSTALLATIONS.

CONCRETE NOTES

1. CONCRETE WORK SHALL CONFORM TO THE AMERICAN CONCRETE INSTITUTE (ACI) SPECIFICATION, ACI #301 BUILDING CODE REQUIREMENTS, ACI #318, LATEST EDITION, FOR BUILDING STRUCTURES & BUILDING CODE REQUIREMENTS, ACI #350–06, OR ENVIRONMENTAL STRUCTURES.
2. DETAILING, FABRICATION AND ERECTION OF REINFORCING BARS, UNLESS OTHERWISE NOTED, MUST FOLLOW THE ACI "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE", ACI #315, LATEST EDITION.
3. UNLESS SHOWN OTHERWISE IN THE SPECIFICATIONS, CONCRETE SHALL BE C.O.A. CLASS 'S' CONCRETE WITH 4000 PSI MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS. ALSO REFER TO C.O.A. SPECIFICATIONS FOR ADDITIONAL CONCRETE MIX DESIGN REQUIREMENTS.
4. ACCESSORIES SHALL BE IN ACCORDANCE WITH THE ACI "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE", ACI #315, LATEST EDITION. ACCESSORIES FOR INTERIOR CONCRETE SURFACES EXPOSED TO VIEW SHALL HAVE PLASTIC COATED FEET. ACCESSORIES FOR CONCRETE SURFACES EXPOSED TO EARTH, WEATHER, WATER, OR HIGH HUMIDITY SHALL BE FABRICATED OF STAINLESS STEEL OR PLASTIC. PROVIDE BOLSTERS AT SUSPENDED SLABS, WALLS AND WIDE BEAMS. PROVIDE STANDEES AT ALL SLABS WITH TWO LAYERS OF REINFORCING. FOR SLAB–ON–GRADE REINFORCING, PROVIDE CHAIRS MANUFACTURED FROM HOT–DIPPED GALVANIZED STEEL, STAINLESS STEEL, PLASTIC, OR PRECAST CONCRETE BLOCKS OF EQUAL OR GREATER COMPRESSIVE STRENGTH AS THE CONCRETE BEING POURED.
5. CONCRETE PLACED BY PUMPING SHALL MEET THE FOLLOWING REQUIREMENTS:
   - a. COARSE AGGREGATE (AGG) SHALL BE GRADED FROM A MAXIMUM OF 1 1/2".
   - b. MAXIMUM ALLOWABLE INCREASE IN CEMENT FACTOR SHALL BE 1/2 SACK PER CUBIC YARD OVER NORMAL MIX DESIGN.
   - c. MAXIMUM WATER CEMENT RATIO WILL CONFORM TO REQUIREMENTS STATED IN THE PROJECT SPECIFICATIONS. IF MORE WORKABILITY IS REQUIRED, AN APPROVED ADMIXTURE MAY BE USED. SEE CONCRETE ADMIXTURE SECTION 405S OF THE SPECIFICATION FOR REQUIREMENTS.
   - d. MAXIMUM WEIGHT RATIO OF FINE AGGREGATES TO COARSE AGGREGATES (AGG) SHALL NOT EXCEED 2/3.
   - e. REFER TO ACI 301, LATEST EDITION, SECTION 800, FOR OTHER PUMPING REQUIREMENTS.
   - f. IN NO CASE SHALL CONCRETE BE PUMPED THROUGH AN ALUMINUM TUBE.
6. REINFORCING BARS SHALL BE NEW BILLET STEEL CONFORMING TO ASTM SPECIFICATION A615, GRADE 60.
7. STANDARD PROTECTIVE COVER OF REINFORCING BARS UNLESS OTHERWISE NOTED SHALL BE:

   WHERE CAST AGAINST EARTH OR FILL ..... 3 IN.
   EXPOSED TO EARTH, WATER
   OR WEATHER ..... 2 IN.
   SLABS AND WALLS ..... 2 IN.
   OTHER ..... 2 IN.
8. BARS SCHEDULED AND DETAILED "CONT" SHALL BE LAPPED 30 BAR DIAMETERS UNLESS OTHERWISE NOTED.
9. MAINTAIN A MINIMUM OF ONE BAR DIAMETER (BUT NOT LESS THAN 1") BETWEEN ALL REINFORCING BARS (INCLUDING LAPS) ON ALL SLABS. AND A MINIMUM OF 1–1/2 TIMES THE MAXIMUM COARSE AGGREGATE SIZE IN ALL CASES.
10. SHOP DRAWINGS SHALL BE PREPARED FOR ALL REINFORCING STEEL AND SUBMITTED FOR REVIEW BY ENGINEER. ENGINEERING DRAWINGS SHALL NOT BE REPRODUCED AND USED AS SHOP DRAWINGS.
11. VERTICAL CONSTRUCTION JOINTS IN FLOOR OR ROOF SLABS ARE TO BE AS SHOWN ON PLANS. NO HORIZONTAL JOINTS WILL BE PERMITTED IN SLABS UNLESS OTHERWISE NOTED.
12. WELDING OF REINFORCING BARS SHALL NOT BE PERMITTED, UNLESS APPROVED BY ENGINEER.
13. DURING PLACEMENT OF CONCRETE, USE TREMIE OR OTHER MEANS TO LIMIT FREE–FALL OF CONCRETE TO 5'–0".
14. SELF–EXPANDING STRIP WATERSTOPS SHALL BE MANUFACTURED RECTANGULAR OR TRAPEZOIDAL STRIP, NON–BENTONITE, HYDROPHYLIC MATERIAL FOR ADHESIVE BONDING TO CONCRETE. THESE WATERSTOPS SHALL BE MANUFACTURED FROM HYDRO–EXPANSIVE RUBBER WITH A MINIMUM EXPANSION CAPABILITY OF 200% OF ITS ORIGINAL VOLUME AFTER IMMERSION IN WATER. INSTALL IN CONSTRUCTION JOINTS AND AT OTHER LOCATIONS INDICATED, ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS, BONDING OR MECHANICALLY FASTENING AND FIRMLY PRESSING INTO PLACE. INSTALL IN LONGEST LENGTHS PRACTICAL. SUBJECT TO SPECIFICATION REQUIREMENTS, PROVIDE ONE OF THE FOLLOWING:
   - a) SWELLSEAL JOINT; DE NEEF CONSTRUCTION CHEMICALS (U.S) INC.
   - b) HYDROTITE; GREENSTREAK
   - c) ADEKA ULTRA SEAL; MITSUBISHI INTERNATIONAL CORPORATION
   - d) APPROVED EQUAL
15. AT ALL OPENINGS OR PENETRATIONS THRU CONCRETE WALLS OR SLABS, PROVIDE ADDITIONAL REINFORCINGS ADJACENT TO THE OPENINGS PER TYPICAL DETAIL 4&5/S1.7, UNO.
16. ALL EXPOSED CONCRETE CORNERS SHALL HAVE A 3/4" CHAMFER U.N.O.

MONOLITHIC DRAWINGS

1. CONTRACTOR MUST SUBMIT MONOLITHIC DRAWINGS FOR ALL CONCRETE WORK, IN 2D OR ISOMETRIC. EACH DRAWING SHALL CLEARLY IDENTIFY, LOCATE AND DIMENSION THE FOLLOWING:
   - A. CONTROL, CONSTRUCTION, CONTRACTION AND EXPANSION JOINTS, AS DERIVED FROM THE DIRECTIONS IN CONTROL JOINT NOTES. ALL JOINTS ADDED, DELETED OR MOVED FROM THE DESIGN DRAWINGS SHALL BE CLEARLY IDENTIFIED.
   - B. ALL REBAR LAYOUTS ASSOCIATED WITH JOINT LOCATIONS.
   - C. EMBED ITEMS.
   - D. ALL CONCRETE PENETRATIONS.
   - E. WATERSTOPS.
   - F. KEY ELEVATIONS.
   - G. ELECTRICAL CONDUIT.
   - H. ALL OTHER ITEMS LOCATED IN OR PASSING THROUGH THE CONCRETE.

ANTI–CORROSION COATING NOTES

1. ALL SURFACES OF EXISTING CONCRETE THAT ARE NEWLY EXPOSED BY WIRE CUTTING, SAWCUTTING, OR CORE–DRILLING SHALL BE COATED WITH TWO COATS OF SIKA ARMATEC 110 EPOCEM AS MANUFACTURED BY SIKA CORPORATION (OR AN APPROVED EQUAL), UNLESS NOTED OTHERWISE.
2. BEFORE COATING CONCRETE, BURN BACK ALL EXIST REINF EXPOSED BY CUTTING TO A MIN DEPTH OF 1 1/2". GROUT HOLES WITH A CORROSION INHIBITING REPAIR MORTAR SUCH AS "SIKATOP 111 PLUS" AS MANUFACTURED BY SIKA CORPORATION (OR AN APPROVED EQUAL). PREPARE, APPLY, AND CURE MORTAR PER MFR'S PUBLISHED GUILDLINES.
3. APPLY PRODUCT AS AN ANTI–CORROSION COATING PER THE MANUFACTURER'S PUBLISHED GUIDELINES.
4. TWO COATS OF 20 MILS THICKNESS SHALL RESULT IN A FINAL COATING WITH A MINIMUM THICKNESS OF 40 MILS.

SELF–EXPANDING STRIP WATERSTOP NOTES

1. SELF–EXPANDING STRIP WATERSTOP SHALL BE MANUFACTURED RECTANGULAR OR TRAPEZOIDAL STRIP, BENTONITE–FREE, HYDROPHILIC MATERIAL FOR ADHESIVE BONDING TO CONCRETE. THESE WATERSTOPS SHALL BE MANUFACTURED FROM HYDRO–EXPANSIVE RUBBER WITH A MINIMUM EXPANSION CAPABILITY OF 200–PERCENT OF ITS ORIGINAL VOLUME AFTER IMMERSION IN WATER.
2. INSTALL AT CONSTRUCTION JOINTS AND AT OTHER LOCATIONS INDICATED, ACCORDING TO THE MANUFACTURER'S WRITTEN INSTRUCTIONS, BONDING OR MECHANICALLY FASTENING AND FIRMLY PRESSING INTO PLACE.
3. INSTALL IN THE LONGEST LENGTHS PRACTICAL.
4. CONCRETE SURFACES LEFT ROUGH BY JACK HAMMERING, EXTENSIVE WEATHERING, OR IRREGULAR FORM WORK SHALL BE BROUGHT TO A SMOOTH & LEVEL CONDITION PER THE MFR'S PUBLISHED INSTALLATION GUIDELINES.
5. PROVIDE ONE OF THE FOLLOWING PRODUCTS:
   - a. SWELLSEAL JOINT; DE NEEF CONSTRUCTION CHEMICALS (U.S) INC
   - b. HYDROTITE CJ PROFILE; GREENSTREAK
   - c. ADEKA ULTRA SEAL MC–2010MN; MITSUBISHI INTERNATIONAL CORP
   - d. APPROVED EQUAL

RECTANGULAR BAR GRATING

1. UNLESS OTHERWISE NOTED OR APPROVED, NEW GRATING SHALL BE AS FOLLOWS. GRATING AT THE INTERIOR OF THE RESERVOIR (WET SIDE) SHALL BE TYPE 316 STAINLESS STEEL. SITE GRATING AND OTHER LOCATIONS SHALL BE GALVANIZED.

LOCATION	GRATING
CROWS NEST	McNICHOLS TYPE GW–2, 1" x 3/16" @ 1 3/16" O.C.
PRV VAULT	McNICHOLS TYPE GW–2, 1 1/2" x 3/16" @ 1 3/16" O.C.
REST PLATFORMS	McNICHOLS TYPE GW–2, 1 1/4" x 3/16" @ 1 3/16" O.C.
CATWALK PLATFORMS	McNICHOLS TYPE GW–2, 1 1/4" x 3/16" @ 1 3/16" O.C.
PEDESTRIAN BRIDGE	McNICHOLS TYPE GW–2, 1" x 1/8" @ 1 3/16" O.C.

2. ALL GRATINGS SHALL COMPLY WITH THE ANSI / NAAMM METAL BAR GRATING MANUAL MBG 531, LATEST EDITION.
3. GRATINGS SHALL BE PRESSURE–LOCKED, FABRICATED BY PRESSING RECTANGULAR FLUSH–TOP CROSSBARS INTO SLOTTED BEARING BARS OR BY SWAGING CROSSBARS BETWEEN BEARING BARS.
4. BAR GRATINGS ARE DESIGNED TO SUPPORT A UNIFORM LIVE LOAD OF 150 PSF WITH A MAXIMUM DEFLECTION OF L/240 OR ¼ INCH, WHICHEVER IS LESS. SUBMIT MANUFACTURER'S PUBLISHED LOAD TABLES AND ANALYSIS DATA TO SHOW THAT THE PROPOSED GRATINGS MEET THE DESIGN REQUIREMENTS.
5. ALL CUTOUT OPENINGS FOR GATE OPERATOR SUPPORT BRACKETS, PIPE PENETRATIONS, OR CONDUIT PENETRATIONS SHALL BE LOAD BANDED. THE CUTOUT SIZES & LOCATIONS SHALL BE FULLY COORDINATED AND DOCUMENTED BY THE GRATING SHOP DRAWING SUBMITTAL. ALL CUTOUT AND BANDING FABRICATION SHALL BE PERFORMED IN THE SHOP.
6. SECURELY FASTEN GRATING SECTIONS WITH REMOVABLE SS SADDLE CLIPS IN ACCORDANCE WITH THE MANUFACTURER'S PUBLISHED GUIDELINES. CLIPS SHALL BE DESIGNED AND FABRICATED TO FIT OVER TWO BEARING BARS. PROVIDE NO FEWER THAN FOUR SADDLE CLIPS FOR EACH GRATING SECTION.

STEEL PIPE AND FITTINGS

1. UNLESS NOTED OTHERWISE IN THE CONSTRUCTION DOCUMENTS, ALL SPECIALS AND FITTINGS SHALL CONFORM TO THE DIMENSIONS OF AWWA C208. PIPE MATERIAL AND FITTINGS SHALL BE OF THE SAME MATERIAL AND PRESSURE CLASS OF THE ADJOINING PIPE. THE MINIMUM RADIUS OF ELBOWS SHALL BE 2½ TIMES THE PIPE DIAMETER, AND THE MAXIMUM MITER ANGLE ON EACH SECTION SHALL NOT EXCEED 11¼ DEGREES (ONE CUT ELBOW UP TO 22½ DEGREES).

LOCATION OF DETAILS		
DETAILS	SHEET	DESCRIPTION
01–07	S1.3	TYPICAL DETAILS
101–106	S4.1	SITE DETAILS
201–206A	S5.1	LADDER, GRATING, DETAILS SHEET 1 OF 4
207–215	S5.2	LADDER, GRATING, DETAILS SHEET 2 OF 4
217–220	S5.3	LADDER, GRATING, DETAILS SHEET 3 OF 4
221–222	S5.4	LADDER, GRATING, DETAILS SHEET 4 OF 4
301–309	S6.1	MISC. TANK DETAILS SHEET 1 OF 2
310–312	S6.2	MISC. TANK DETAILS SHEET 2 OF 2

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CONCRETE GROUT NOTES

1. MATERIALS DESIGNATED ON DRAWINGS AS "LEAN CONCRETE" AND, "GROUT TOPPING", ETC. SHALL BE CONCRETE GROUT CONFORMING TO THE FOLLOWING REQUIREMENTS:

2. THE CONCRETE GROUT SHALL CONTAIN CEMENT, POZZOLAN, COARSE AND FINE AGGREGATES, WATER AND WATER REDUCING ADMIX PROPORTIONED TO ACHIEVE A COMPRESSIVE STRENGTH OF 4000 PSI MINIMUM AT 28 DAYS, WITH A WORKABLE SLUMP NOT TO EXCEED 5"

3. THE COARSE AGGREGATE SHALL BE 3/8" MAXIMUM.

4. THIN GROUTS (3" THICKNESS OR LESS) SHALL BE REINFORCED WITH SYNTHETIC REINFORCING FIBERS, AS MANUFACTURED BY "FIBERMESH COMPANY", APPLIED AT THE RATE OF 3 LBS. OF FIBER PER CUBIC YARD OF GROUT, AND COMPLETELY DISPERSED EVENLY WITHIN THE GROUT.

ABBREVIATIONS

A.B.	ANCHOR BOLT
ADDL	ADDITIONAL
A.F.F.	ABOVE FINISH FLOOR
AL	ALUMINUM
ALT	ALTERNATE
ANC	ANCHOR
APVD	APPROVED
ARCH	ARCHITECT, ARCHITECTURAL
BC	BOTTOM CHORD
B.O.C.	BOTTOM OF CONCRETE
B.O.S.	BOTTOM OF STEEL
BOT	BOTTOM, BOTTOM OF TRENCH
BM	BEAM
BRG	BEARING
BTWN	BETWEEN
CC	CENTER TO CENTER
CHKD	CHECKERED
C.I.P.	CAST IN PLACE
C.J.	CONSTRUCTION JOINT
CL, ℄	CENTERLINE
CLR	CLEARANCE
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
CONC	CONCRETE
CONN	CONNECTION
CONT	CONTINUOUS
CTR	CENTER
CTRD	CENTERED
D.B.A.	DEFORMED BAR ANCHOR
DIA, ø	DIAMETER
DP	DEEP
DWG	DRAWING
EA	EACH
ECS	EPOXY COATED STEEL
E.E.	EACH END
E.F.	EACH FACE
EL, ELEV	ELEVATION
EQ.	EQUALLY SPACED
E.S.	EACH SIDE
E.W.	EACH WAY
EXP	EXPANSION
EXST	EXISTING
FD	FLOOR DRAIN
FDN	FOUNDATION
FIN	FINISH
FLG	FLANGE
FLR	FLOOR
FO	FACE OF
FRMG	FRAMING
FRP	FIBER REINFORCED PLASTIC
FS	FAR SIDE
FTG	FOOTING
FV	FIELD VERIFY
GA	GAUGE, GAGE
GALV	GALVANIZED
GRD	GRADE
GRT	GROUT
GRTG	GRATING
H	HIGH
H.C.A.	HEADED CONCRETE ANCHOR
HORIZ	HORIZONTAL
HSB	HIGH STRENGTH BOLT
IF	INSIDE FACE
IN	INCHES
JT.	JOINT
L	LOW
LONG	LONGITUDINAL
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LSH	LONG SLOTTED HOLE
MFR	MANUFACTURER

MAX	MAXIMUM
MB	MACHINE BOLT
M.E.P.	MECHANICAL, ELECTRICAL, AND PLUMBING
MECH	MECHANICAL
MIN	MINIMUM
MTL	METAL
NDT	NON-DESTRUCTIVE TESTING
N.I.C.	NOT IN CONTRACT
NOM.	NOMINAL
NS	NEAR SIDE
NTS	NOT TO SCALE
O.C.	ON CENTER
O.D.	OUTSIDE DIAMETER
O.F.	OUTSIDE FACE
O/O	OUT TO OUT
OPNG	OPENING
OPP.	OPPOSITE
OSH	OVERSIZED HOLE
PC	PRECAST
PLCS	PLACES
P.J.F.	PREMOLDED JOINT FILLER
PL, ℘	PLATE
PROJ	PROJECTION
PVC	POLYVINYL CHLORIDE
RD	ROOF DRAIN
REINF	REINFORCE, REINFORCING
REQD	REQUIRED
RT	RADIOGRAPHIC TESTING
RTN	RETURN
S.B.D.	SCHED. BEAM DEPTH
S.B.W.	SCHED. BEAM WIDTH
S.J.D.	SCHED. JOIST DEPTH
S.J.W.	SCHED. JOIST WIDTH
SHT	SHEET
S.I.B.	STRUCTURAL ISOLATION BREAK
SIM.	SIMILAR
SLV	SHORT LEG VERTICAL
SPCG	SPACING
SPCS	SPACES
SPECS	SPECIFICATIONS
SQ	SQUARE
S.S.	STAINLESS STEEL
S.S.D.	SCHED. SLAB DEPTH
SSH	SHORT SLOTTED HOLE
STD	STANDARD
STIFF	STIFFENER
STL	STEEL
SW	STUD WELD
SYM.	SYMMETRICAL
T&B	TOP & BOTTOM
T/SL	TOP OF SLAB
TC	TOP CHORD
TD	TRUSS DIAGONAL
THK	THICK
TO.	TOP OF
T.O.C.	TOP OF CONCRETE
T.O.F.	TOP OF FOOTING
T.O.L.	TOP OF LUG
T.O.G.	TOP OF GRATING
T.O.S.	TOP OF STEEL
T.O.W.	TOP OF WALL
TRANS	TRANSVERSE
TV	TRUSS VERTICAL
TYP	TYPICAL
U.N.O.	UNLESS NOTED OTHERWISE
UT	ULTRASONIC TESTING
VERT	VERTICAL
W	WIDE
W/	WITH
WS	WATERSTOP
W.W.F.	WELDED WIRE FABRIC

STATEMENT OF SPECIAL INSPECTION PER IBC 2012, CHAPTER 17

PER SECTION 1705 OF THE 2012 INTERNATIONAL BUILDING CODE, THE FOLLOWING IS A LIST OF THE REQUIRED SPECIAL INSPECTIONS APPLICABLE FOR THIS PROJECT :

2012 IBC SECTION	INSPECTION / ASSURANCE	TYPE OF SPECIAL INSPECTIONS AND EXTENT	APPLICABLE	NON APPLICABLE	NON STRUCTURAL
1705.2	AISC 360	STEEL CONSTRUCTION	■	□	□
1705.2.2	IBC TABLE 17052.2	STEEL CONSTRUCTION OTHER THAN STRUCTURAL STEEL	■	□	□
1705.2.2.1.1	AWS D1.3	COLD-FORMED WELDING INSPECTION	□	■	□
1705.2.2.1.2	AWS D1.4 AND ACI 318	REINFORCING STEEL WELDING INSPECTION	□	■	□
1705.2.2.2	INDICATED IN SECTION	COLD-FORMED STEEL TRUSSES SPANNING 60 FEET OR GREATER	□	■	□
1705.3	IBC TABLE 1705.3	CONCRETE CONSTRUCTION	■	□	□
1705.4	INSPECTION: TMS 420/ACI 530/ASCE 5 ASSURANCE: TMS 620/ACI 530.1/ASCE 6	MASONRY CONSTRUCTION	□	■	□
1705.5	INDICATED IN SECTION	WOOD CONSTRUCTION	□	■	□
1705.6	INDICATED IN SECTION	SOILS	■	□	□
1705.7	INDICATED IN SECTION	DRIVEN DEEP FOUNDATIONS	□	■	□
1705.8	INDICATED IN SECTION	CAST-IN-PLACE DEEP FOUNDATIONS (PIERS)	□	■	□
1705.9	INDICATED IN SECTION	HELICAL PILE FOUNDATIONS	□	■	□
1705.10	INDICATED IN SECTION	SPECIAL INSPECTION FOR WIND RESISTANCE	□	■	□
1705.11	INDICATED IN SECTION	SPECIAL INSPECTION FOR SEISMIC RESISTANCE	□	■	□
1705.12	INDICATED IN SECTION	TESTING AND QUALIFICATION FOR SEISMIC RESISTANCE	□	■	□
1705.13	INDICATED IN SECTION	SPRAYED FIRE-RESISTANCE MATERIALS	□	■	□
1705.14	AWCI 12-B	MASTIC AND INTUMESCENT FIRE-RESISTANT COATINGS	□	■	□
1705.15	INDICATED IN SECTION & ASTM E2570	EXTERIOR INSULATION AND FINISH SYSTEMS/ WATER-RESISTIVE BARRIER COATING	□	■	□
1705.16	INDICATED IN SECTION	FIRE-RESISTANCE PENETRATIONS AND JOINTS	□	■	□
1705.17	INDICATED IN SECTION	SPECIAL INSPECTION FOR SMOKE CONTROL	□	■	□

PER CHAPTER 17 OF THE 2012 INTERNATIONAL BUILDING CODE, THE FOLLOWING IS A LIST OF ADDITIONAL SPECIAL INSPECTIONS APPLICABLE TO THIS PROJECT * :

2012 IBC SECTION	TYPE OF SPECIAL INSPECTIONS AND EXTENT	APPLICABLE	NON APPLICABLE	DETAILS
1706	DESIGN STRENGTH OF MATERIALS	□	■	
1707	ALTERNATIVE TEST PROCEDURES	□	■	
1708	TEST SAFE LOAD	□	■	
1709	IN-SITU LOAD TESTS	□	■	
1710	PRECONSTRUCTION LOAD TESTS	□	■	
1711	MATERIAL AND TEST STANDARDS	□	■	

* ADDITIONAL SPECIAL INSPECTIONS PER 2012 IBC SHALL ALSO BE REQUIRED FOR PROPOSED WORK THAT IS, IN THE OPINION OF THE BUILDING OFFICIAL, UNUSUAL IN NATURE.

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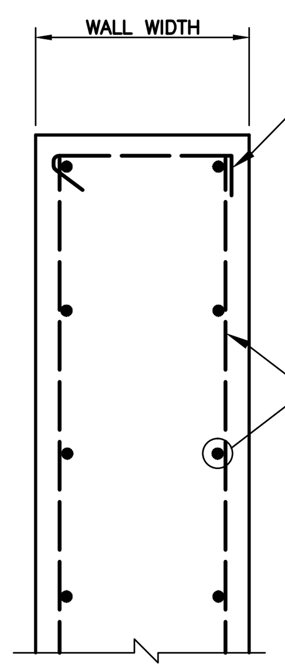
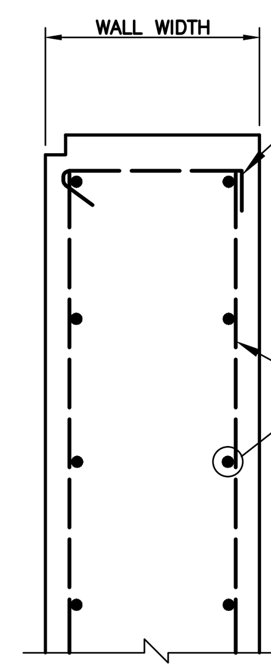


NOTES:

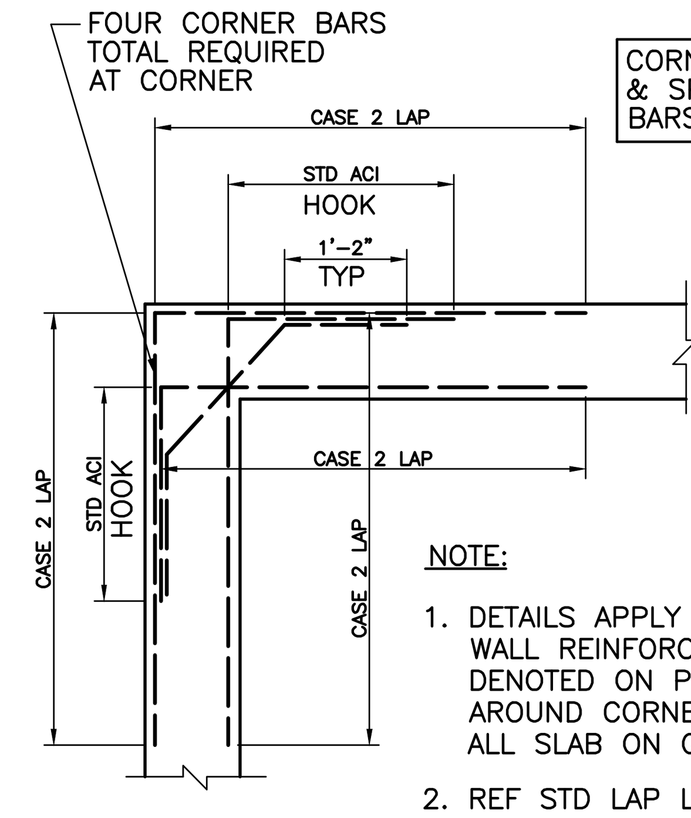
1. THIS DETAIL ONLY APPLIES TO WALLS WITH WIDTHS GREATER THAN 1'–2"
2. GRATING SEAT NOT SHOWN FOR CLARITY.

TYPE 1



TYPE 2
(AT GRATING SEAT)

01 TYPICAL TOP OF WALL REINFORCING DETAIL
SCALE: NTS

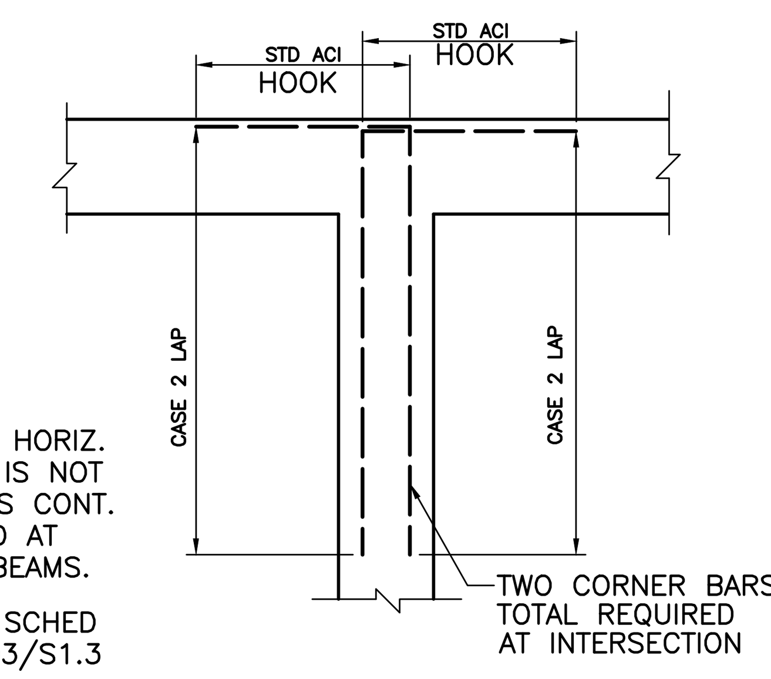


CORNER BARS – SAME SIZE & SPACING AS HORIZONTAL BARS

PLAN – SECTION
AT CORNER

NOTE:

1. DETAILS APPLY WHERE HORIZ. WALL REINFORCEMENT IS NOT DENOTED ON PLANS AS CONT. AROUND CORNERS AND AT ALL SLAB ON GRADE BEAMS.
2. REF STD LAP LENGTH SCHED FOR CASE 2 LAP – 03/S1.3
3. REF. WALL SECTIONS FOR WALL REINF.



PLAN – SECTION
AT "T" SECTION

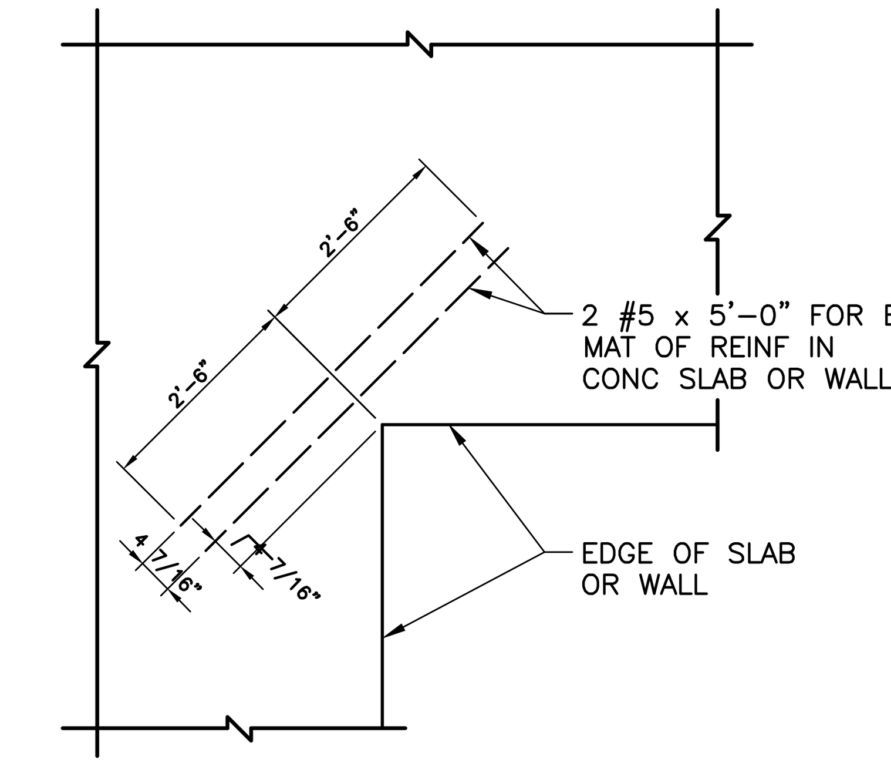
02 TYPICAL WATER RETAINING CONCRETE WALLS CORNER BAR DETAILS
SCALE: NTS

STANDARD LAP LENGTHS		
BAR SIZE	BAR POSITION	
	CASE 1	CASE 2
#3	22"	28"
#4	29"	37"
#5	36"	47"
#6	43"	56"
#7	63"	81"
#8	72"	93"
#9	81"	105"
#10	91"	118"
#11	101"	131"

CASE 1: HORIZONTAL BARS WITH LESS THAN 12" OF CONC BELOW BARS, AND ALL VERTICAL BARS.

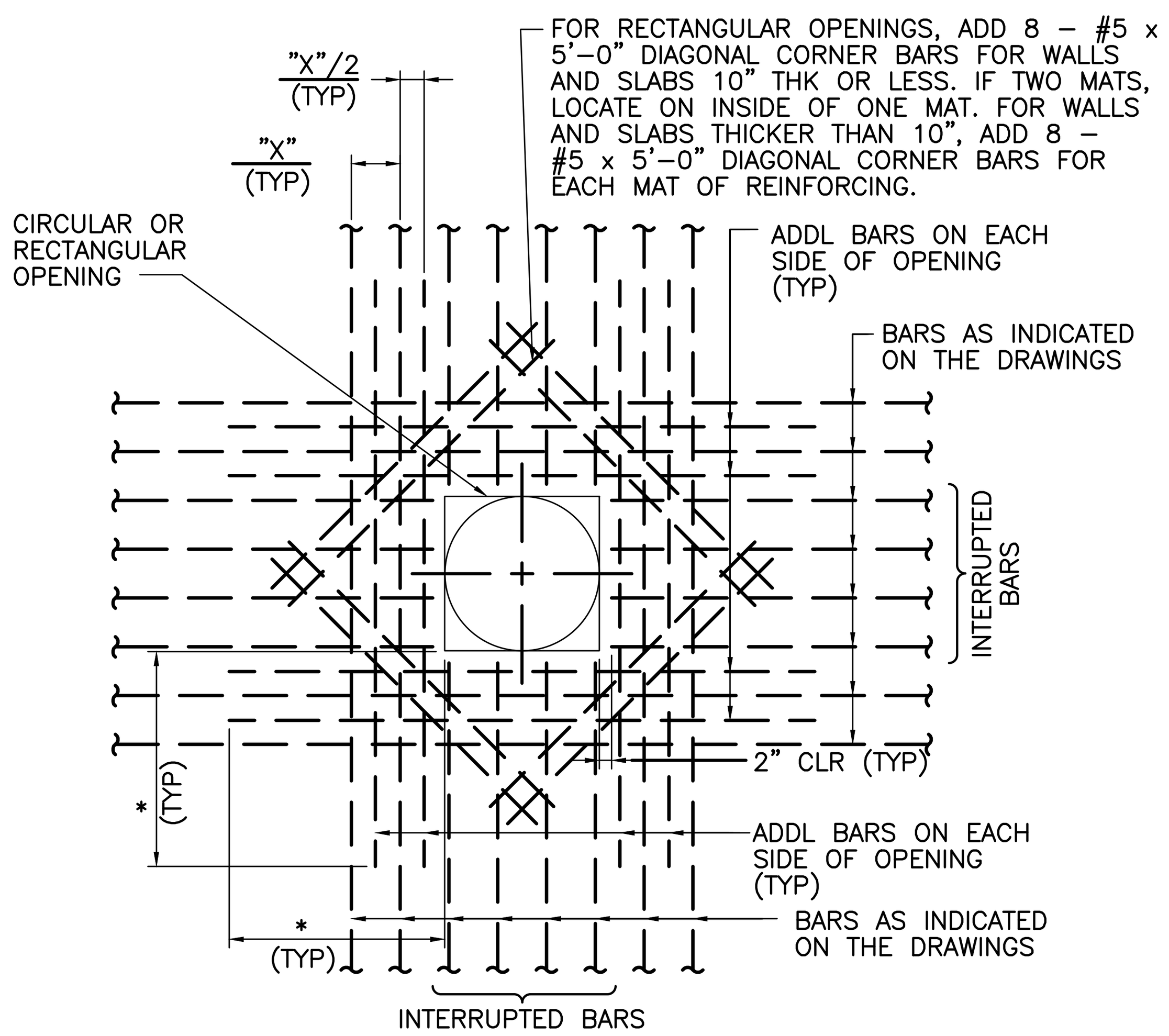
CASE 2: HORIZONTAL BARS W/ 12" OR MORE CONC BELOW BARS.

03 STANDARD LAP LENGTHS
SCALE: NTS



NOTE:
PROVIDE ADDL REINF BARS AT ALL SLAB AND WALL CONDITIONS WITH RE–ENTRANT CORNERS, OPENINGS, ISOLATION JOINTS, OR POUR JOINTS

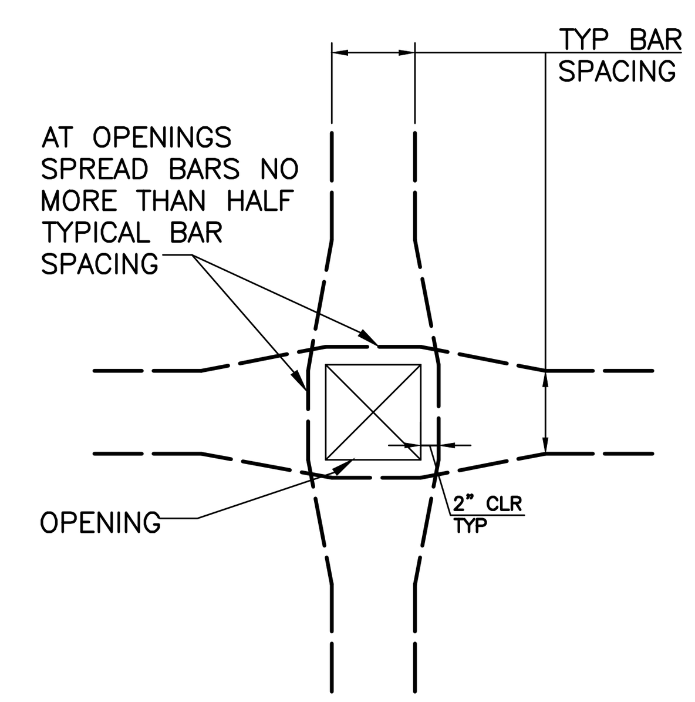
04 TYPICAL CONCRETE RE–ENTRANT CORNER REINFORCEMENT DETAIL
SCALE: NTS



NOTE:

1. SPREAD AND/OR CUT REINF AT OPENINGS. SPREAD BARS NO MORE THAN HALF TYPICAL BAR SPACING.
2. THE '*' DIMENSION EQUALS OPENING DIMENSION MEASURED PERPENDICULAR TO ADDL BARS PLUS TENSION LAP LENGTH.
3. PROVIDE STD ACI HOOKS ON BARS IF STRAIGHT EXTENSIONS DO NOT FIT.
4. PLACE DIAGONAL BARS ON THE INSIDE OF MAIN REINF.

05 TYPICAL CONCRETE REINFORCEMENT AT WALL/ SLAB PENETRATIONS
SCALE: NTS

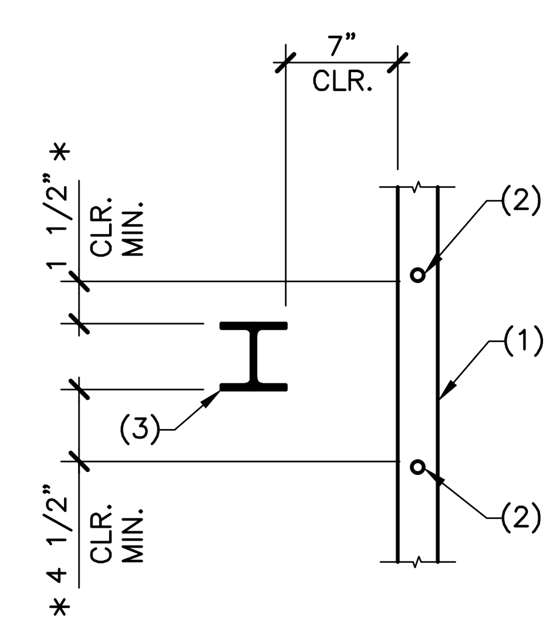


OPENINGS
12" OR LESS

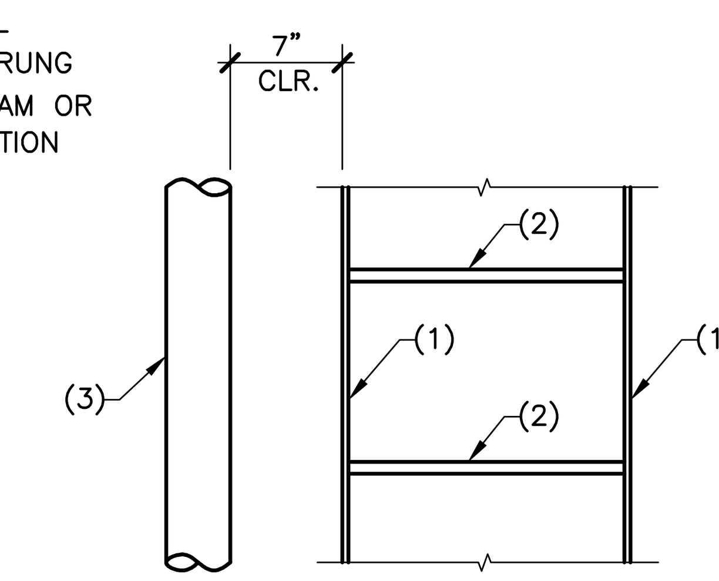
06 TYPICAL CONCRETE REINFORCING AT WALL/ SLAB SMALL OPENINGS
SCALE: NTS

KEY NOTE:

1. SIDE RAIL
2. LADDER RUNG
3. PIPE, BEAM OR OBSTRUCTION



SIDE VIEW
* THESE DIMS. APPLY IF LESS THAN 7" CLR.



FRONT VIEW

07 TYPICAL LADDER CLEARANCES FROM OBSTRUCTIONS
SCALE: NTS

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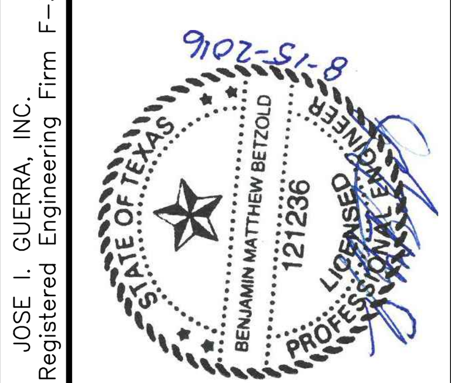

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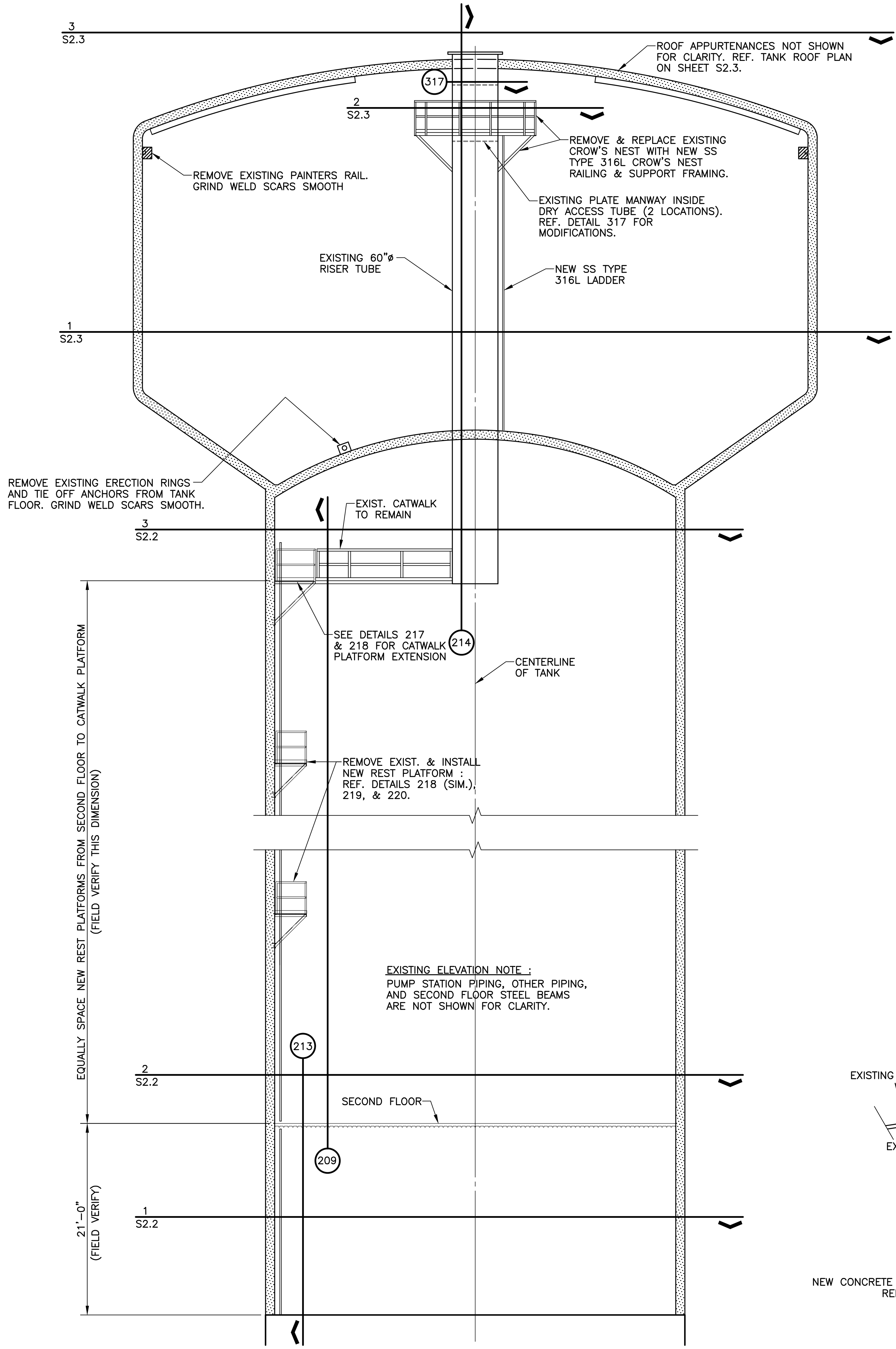
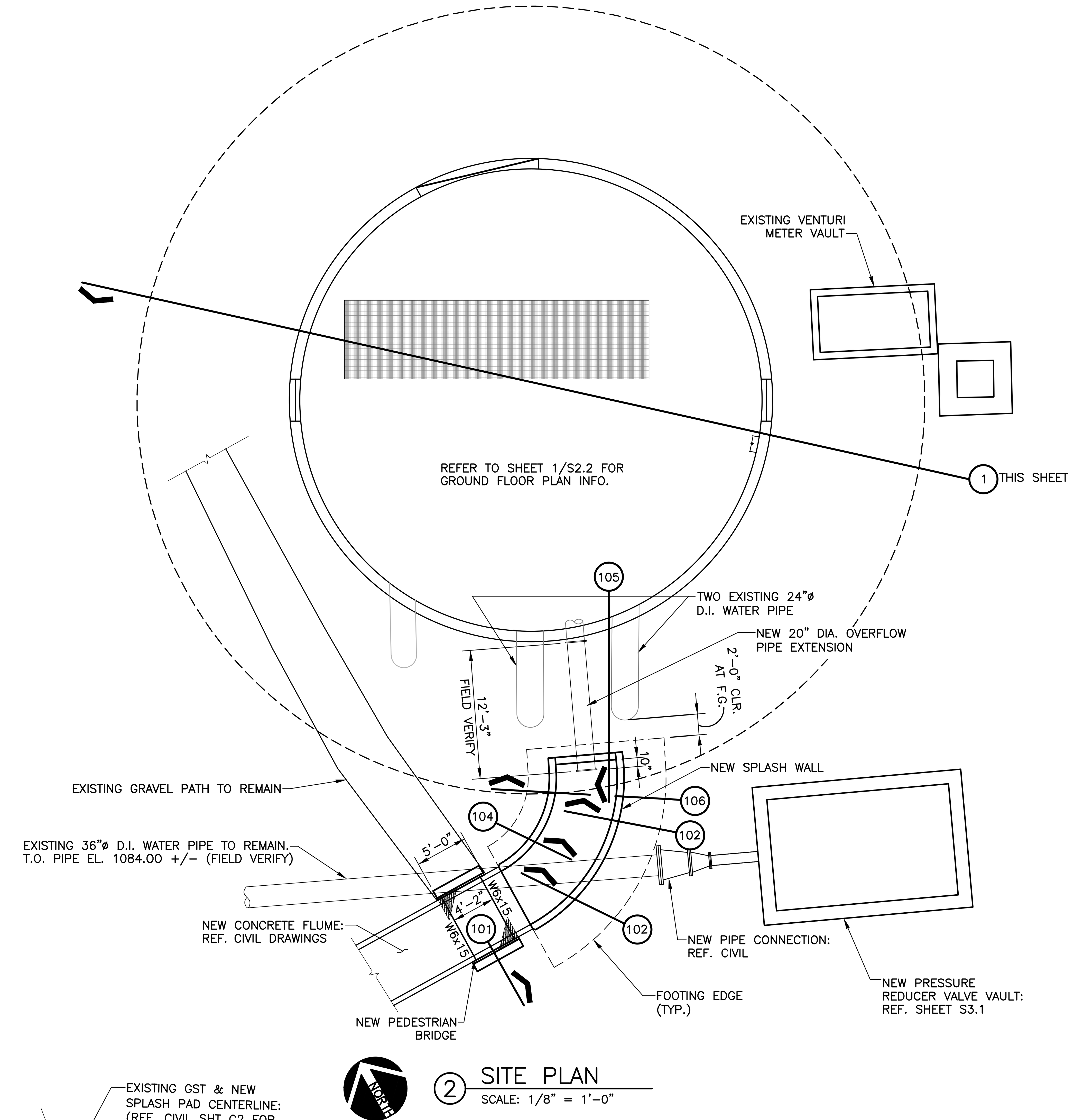
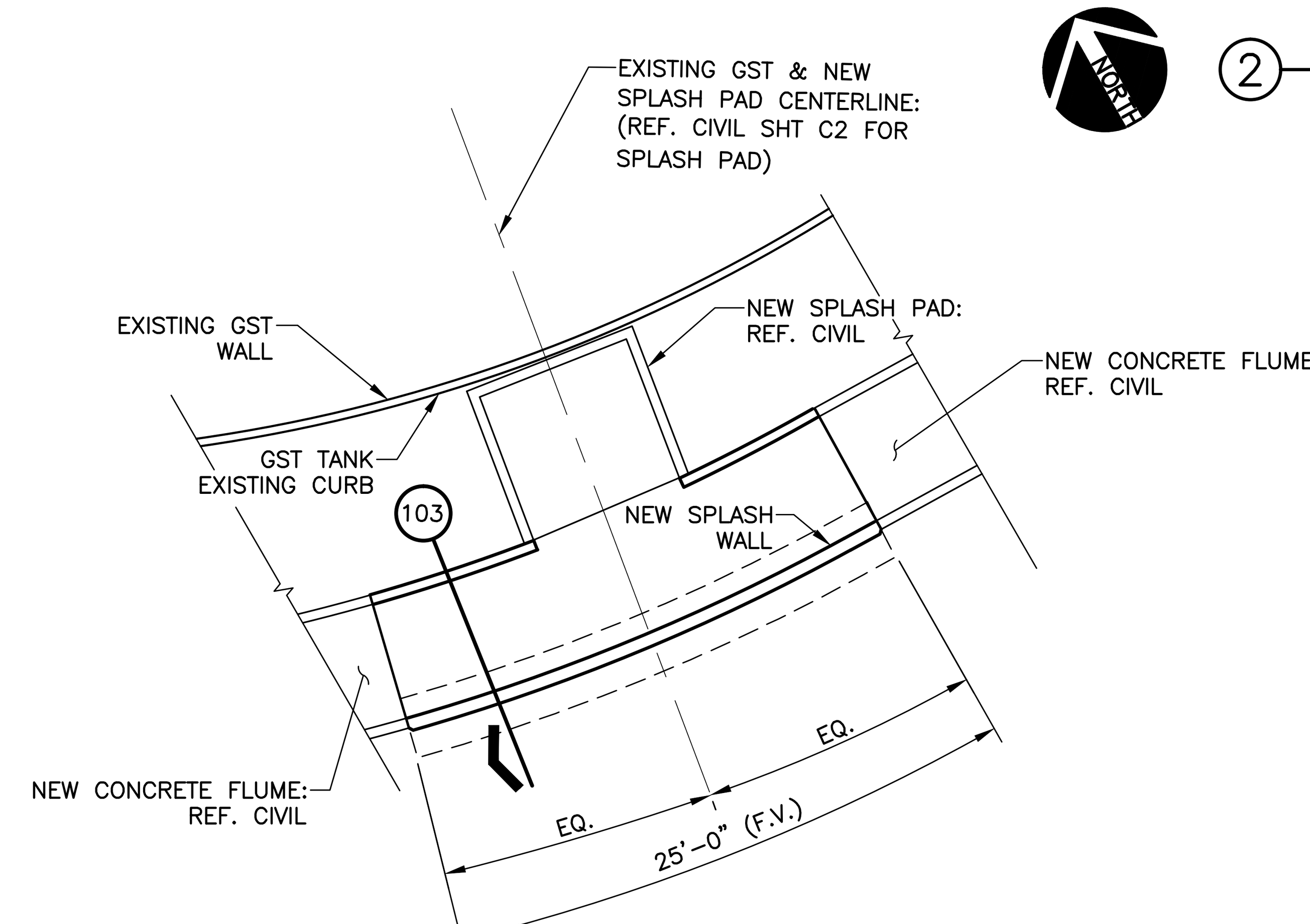


1 ELEVATED TANK SECTION
SCALE: 1/8" = 1'-0"



2 SITE PLAN
SCALE: 1/8" = 1'-0"



3 NEW SPLASH WALL PLAN @ GST
SCALE: 1/8" = 1'-0"

PIPING, CONDUITS, AND OTHER POTENTIAL OBSTRUCTIONS – TO BE ROUTED IN THE VICINITY OF LADDERS, SAFETY RAILS, AND PLATFORMS – SHALL BE COORDINATED WITH A CITY OF AUSTIN REPRESENTATIVE PRIOR TO INSTALLATION.

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FOUR POINT ELEVATED RESERVOIR IMPROVEMENTS
STRUCTURAL
SITE PLAN AND ELEVATION

NO.	ISSUE	BY	DATE

F&N JOB NO. AU116177
DATE 08/15/16
DESIGNED BB
DRAWN RH
REVISED RH
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FILE NAME S2.1.dwg

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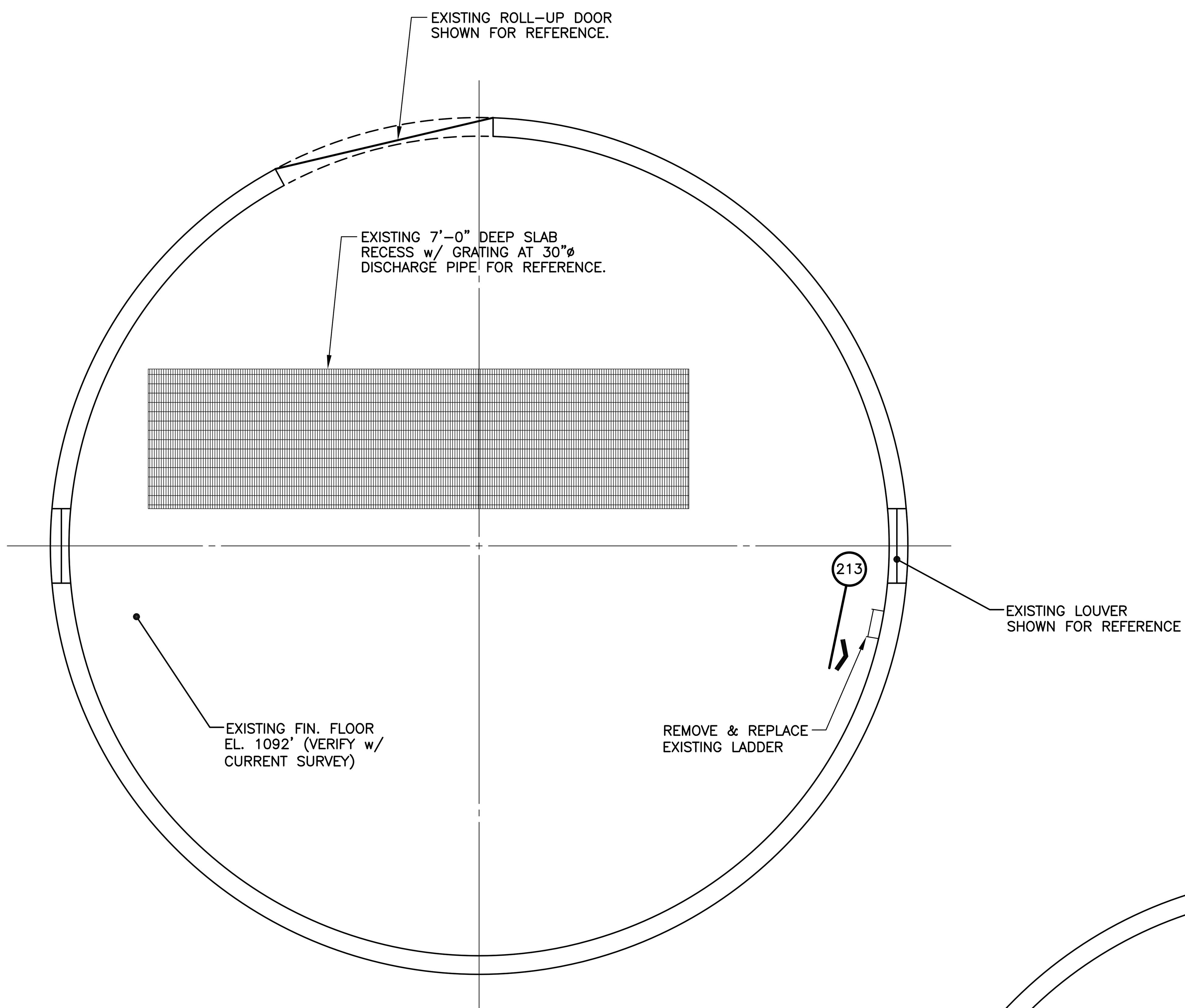
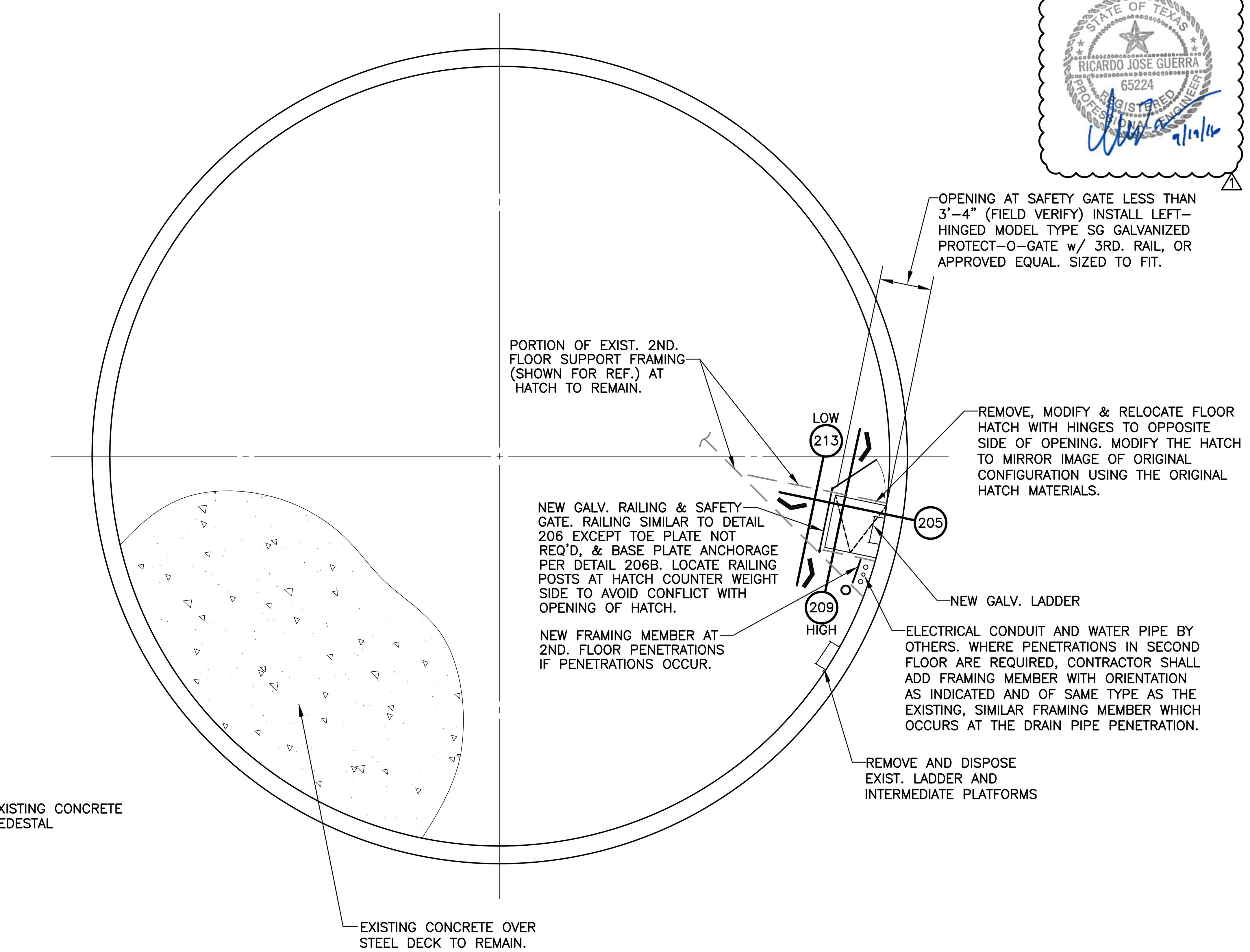
ACAD Rel 18.2s (LMS Tech) User: 02160
[SAM12104][]C:\USERS\02160\DESKTOP\AUSTIN\34BORDER.DWG LAYOUT: Model
05/11/2012 1:16:33 P.M. LTS: 1 PSLTS: 1
Date: Aug 15, 2016 – 1:12pm User: rhinojosaFile: F:\16013_COA Four Points EST Repairs\DRAWINGS\CAD\S2.1.dwg



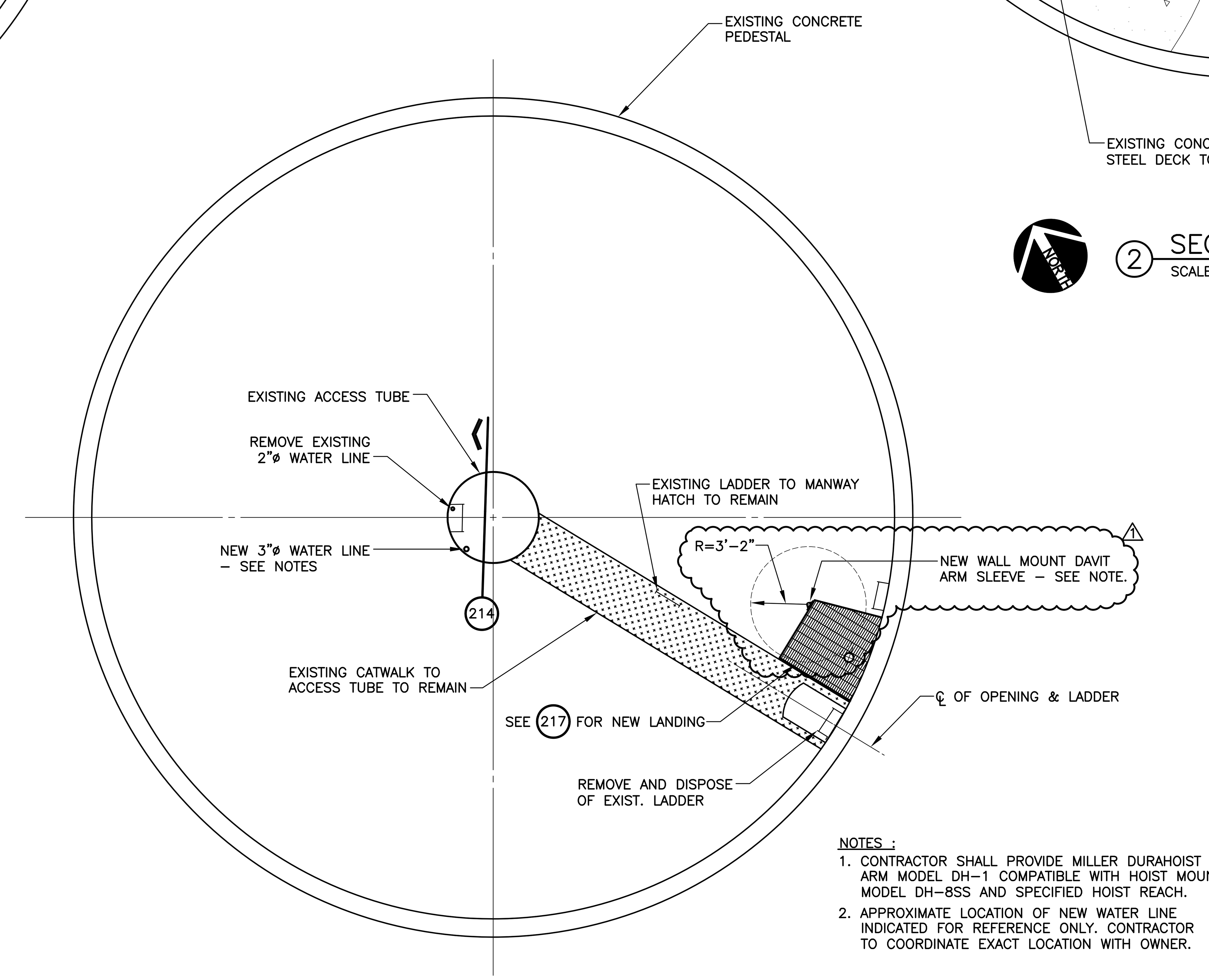
NORTH

1 GROUND FLOOR PLAN
SCALE: 3/16" = 1'-0"



NORTH

2 SECOND FLOOR PLAN
SCALE: 3/16" = 1'-0"



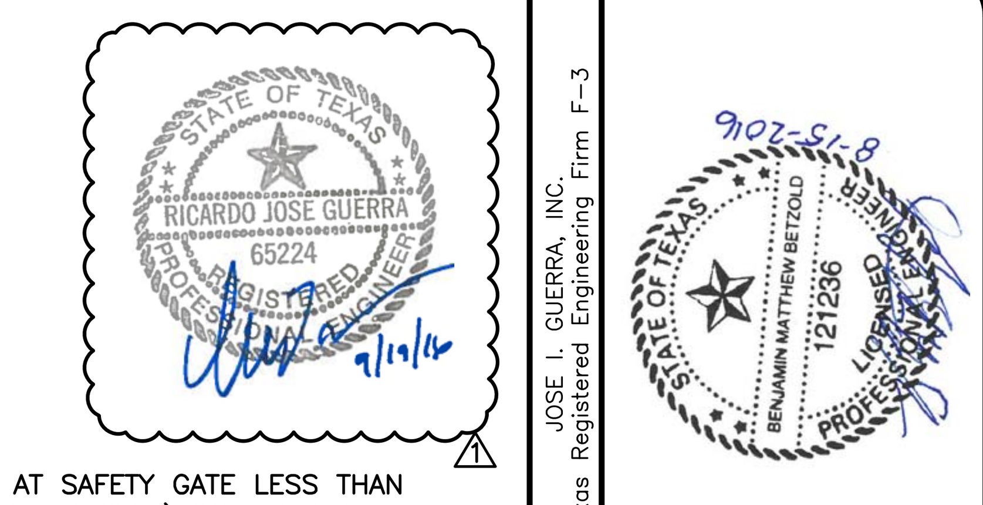
NORTH

3 CATWALK PLATFORM PLAN
SCALE: 3/16" = 1'-0"

NOTES :

1. CONTRACTOR SHALL PROVIDE MILLER DURAHOIST ARM MODEL DH-1 COMPATIBLE WITH HOIST MOUNT MODEL DH-8SS AND SPECIFIED HOIST REACH.
2. APPROXIMATE LOCATION OF NEW WATER LINE INDICATED FOR REFERENCE ONLY. CONTRACTOR TO COORDINATE EXACT LOCATION WITH OWNER.

PIPING, CONDUITS, AND OTHER POTENTIAL OBSTRUCTIONS – TO BE ROUTED IN THE VICINITY OF LADDERS, SAFETY RAILS, AND PLATFORMS – SHALL BE COORDINATED WITH A CITY OF AUSTIN REPRESENTATIVE PRIOR TO INSTALLATION.



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THE CITY OF AUSTIN
FOUR POINT ELEVATED RESERVOIR IMPROVEMENTS
STRUCTURAL
GROUND FLOOR, 2ND FLOOR, AND CATWALK PLATFORM PLANS

NO.	ISSUE	BY	DATE
1	RELOCATED DAVIT ARM SLEEVE	RH	9-19-16

F&N JOB NO.	AU116177
DATE	08/15/16
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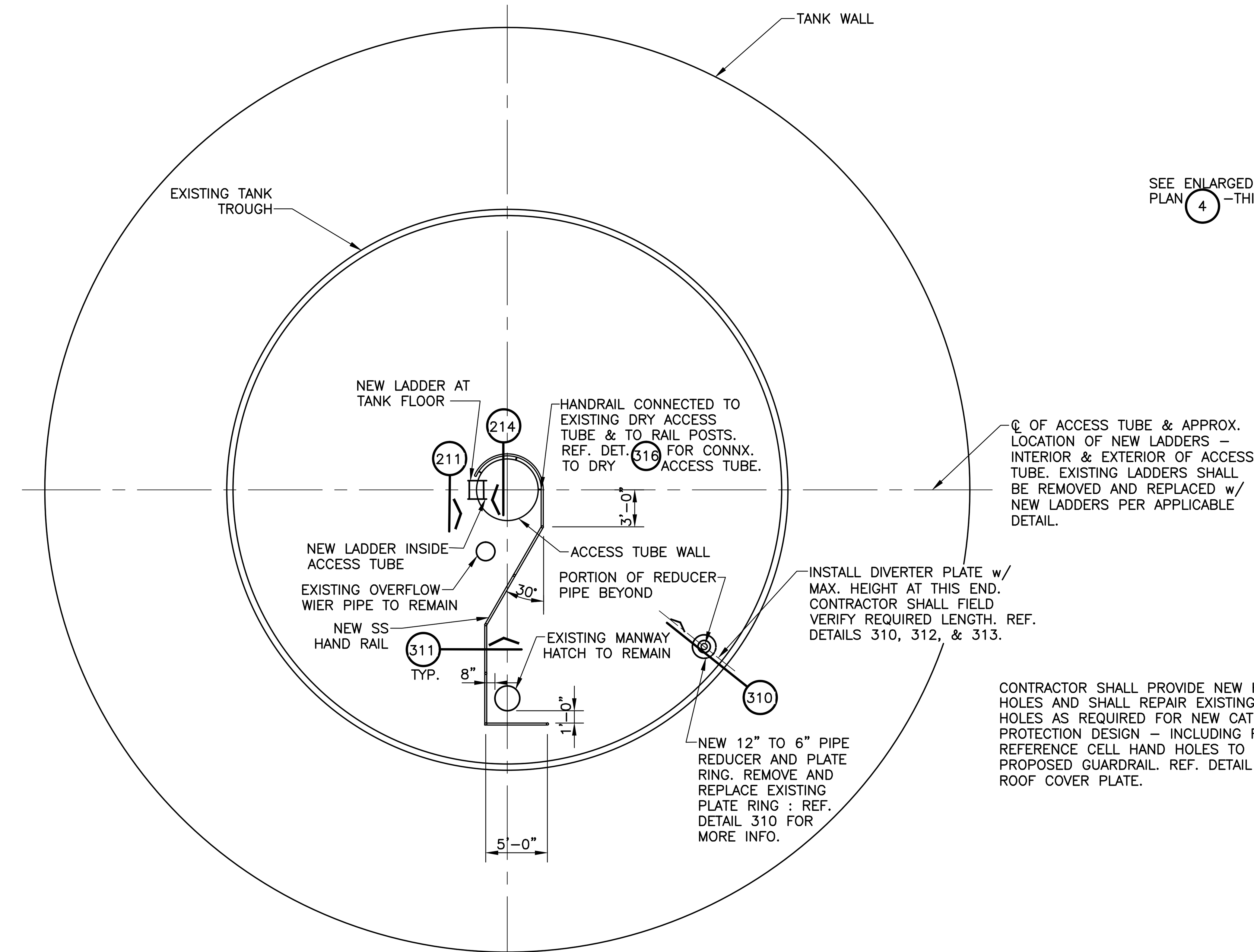
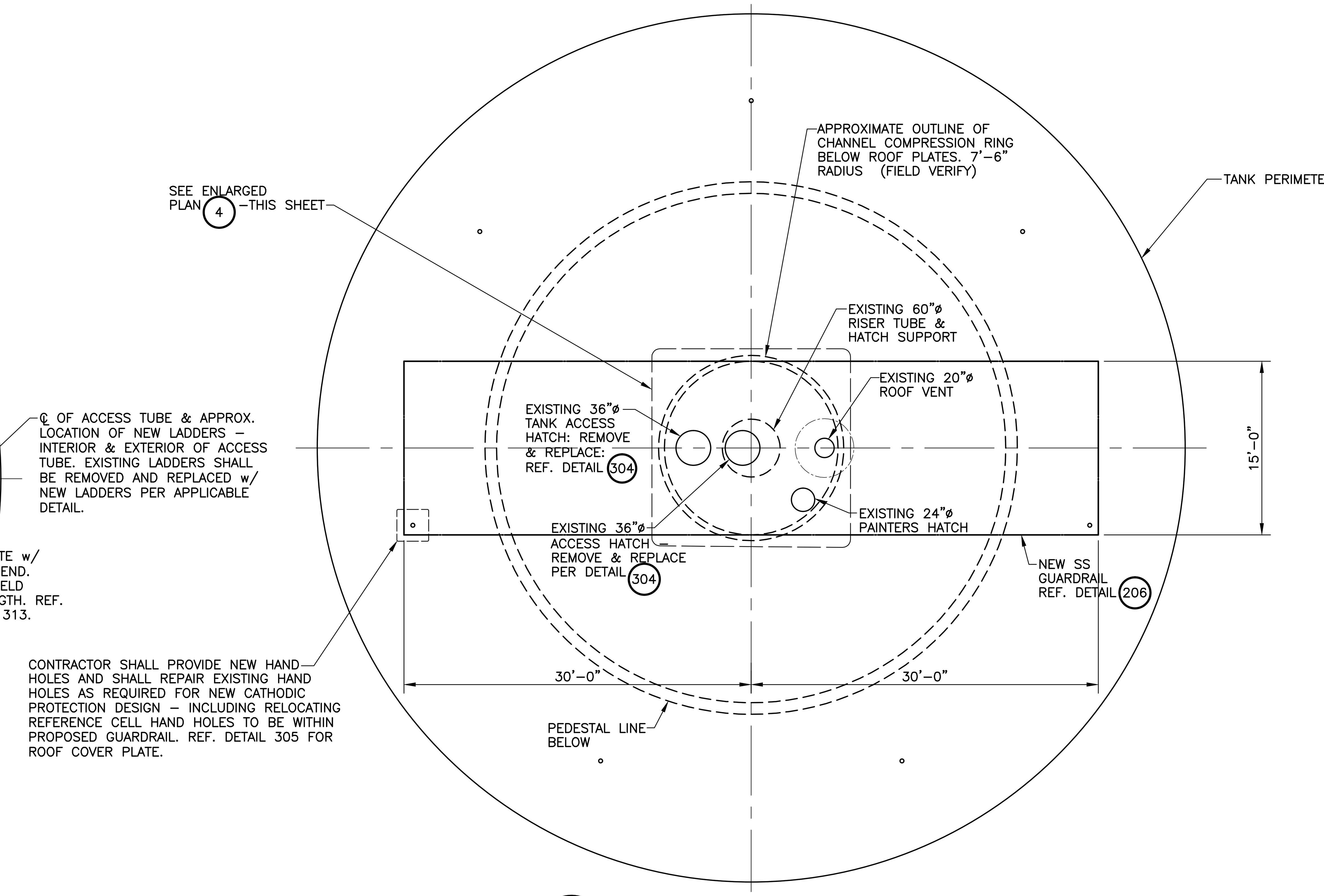
05/11/2012 1:16:33 P.M. LTS: 1 PSLTS: 1

Date: Sep 21, 2016 – 4:15pm User: rhinojosa File: F:\16013_COA Four Points EST Repairs\DRAWINGS\CAD\S2.2.dwg



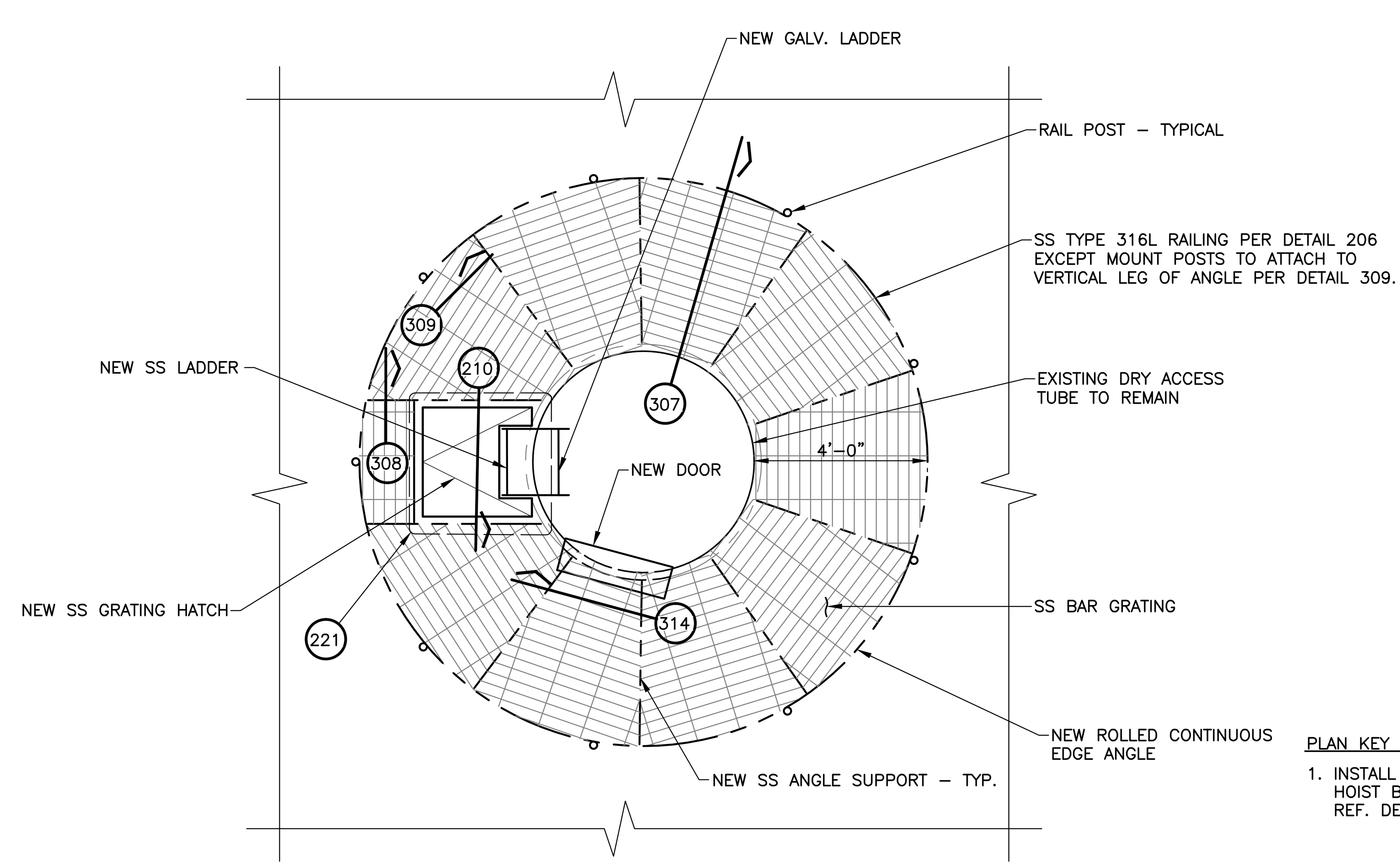
1 BOTTOM OF TANK PLAN

SCALE: 1/8" = 1'-0"



3 TANK ROOF PLAN

SCALE: 1/8" = 1'-0"



2 CROW'S NEST PLAN

SCALE: 3/8" = 1'-0"

PLAN KEY NOTES:

1. INSTALL DOUBLE ANGLES TO SUPPORT HOIST BASE PER MFR. REQUIREMENTS : REF. DETAIL 303

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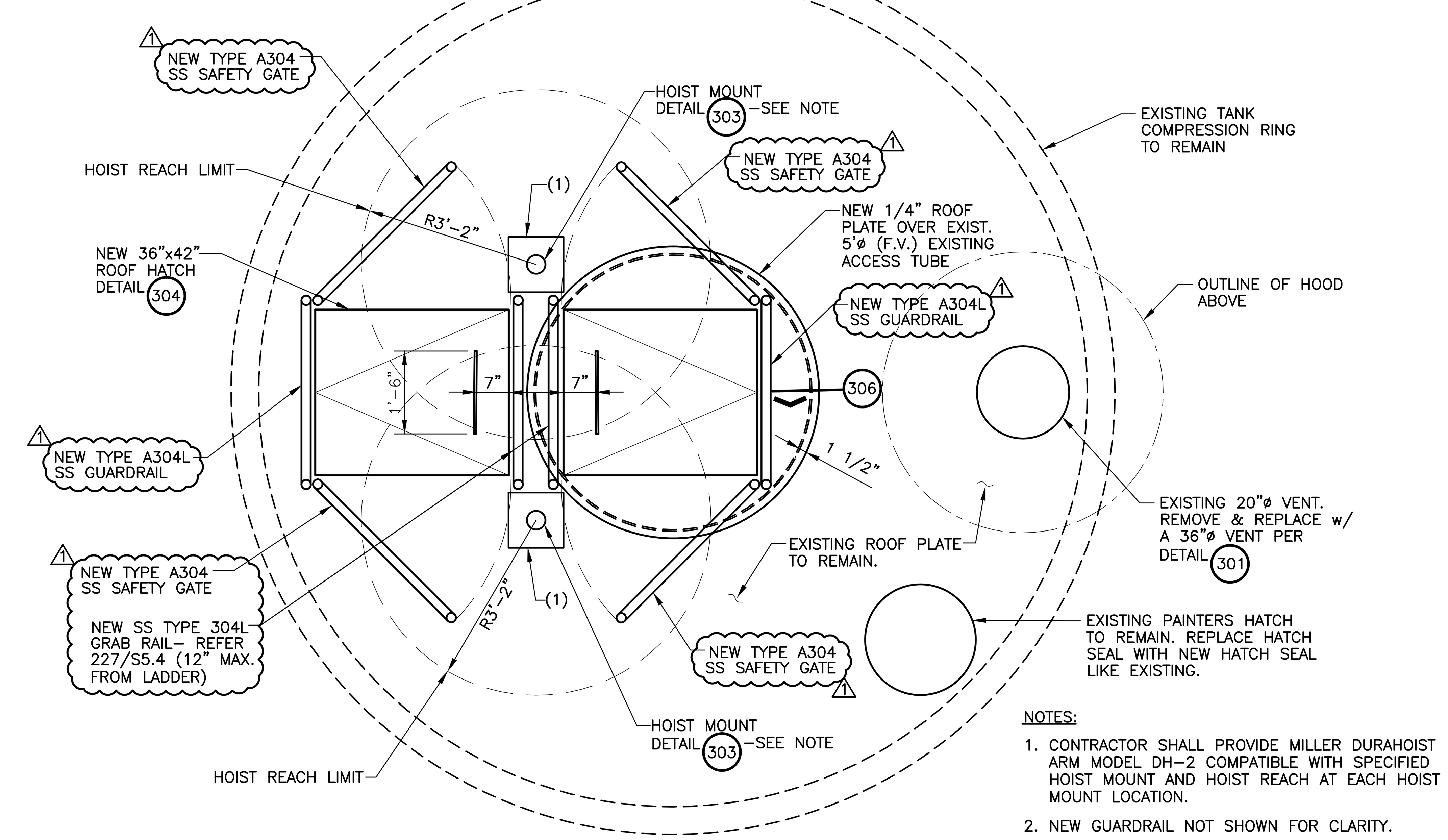

4 ENLARGED ROOF HATCH PLAN

SCALE: 1/2" = 1'-0"

NOTES:

1. CONTRACTOR SHALL PROVIDE MILLER DURAHOIST ARM MODEL DH-2 COMPATIBLE WITH SPECIFIED HOIST MOUNT AND HOIST REACH AT EACH HOIST MOUNT LOCATION.
2. NEW GUARDRAIL NOT SHOWN FOR CLARITY.

STATE OF TEXAS — RICARDO JOSE GUERRA — 65224 — REGISTERED PROFESSIONAL ENGINEER — 9/19/16

JOSE I. GUERRA, INC.
Texas Registered Engineering Firm F-3

STATE OF TEXAS — BENJAMIN MATTHEW BETZOLD — 121236 — LICENSED PROFESSIONAL ENGINEER — 8-15-2016

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THE CITY OF AUSTIN
FOUR POINT ELEVATED RESERVOIR IMPROVEMENTS
STRUCTURAL
BOTTOM OF TANK, CROW'S NEST, AND ROOF PLANS

NO.	ISSUE	BY	DATE
1	REVISED HATCH, GATES, AND RAILS	RH	9-19-16

F&N JOB NO. AU116177
DATE 08/15/16
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DRAWN RH
REVISED RH
CHECKED BB
FILE NAME S2.3.dwg

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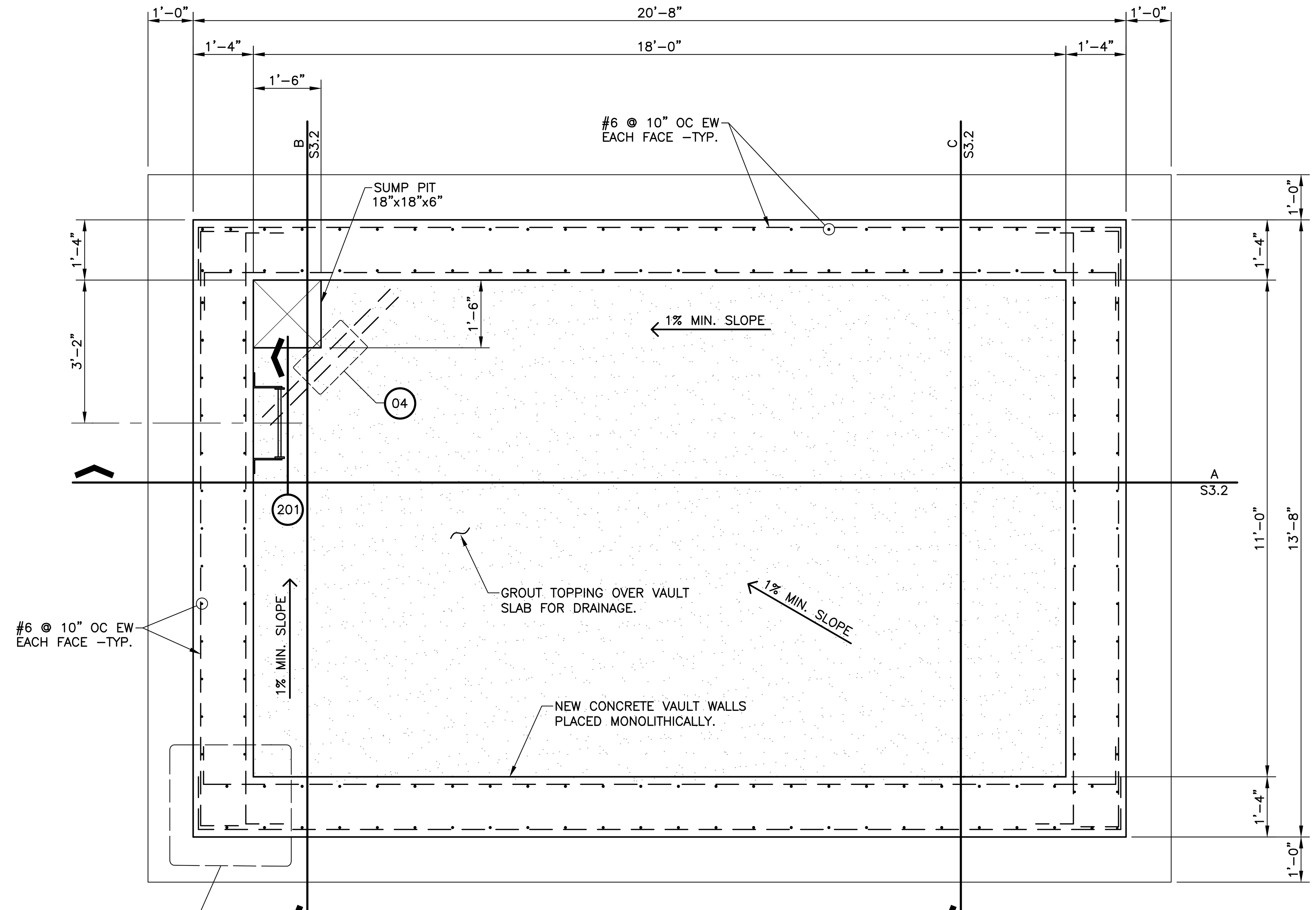
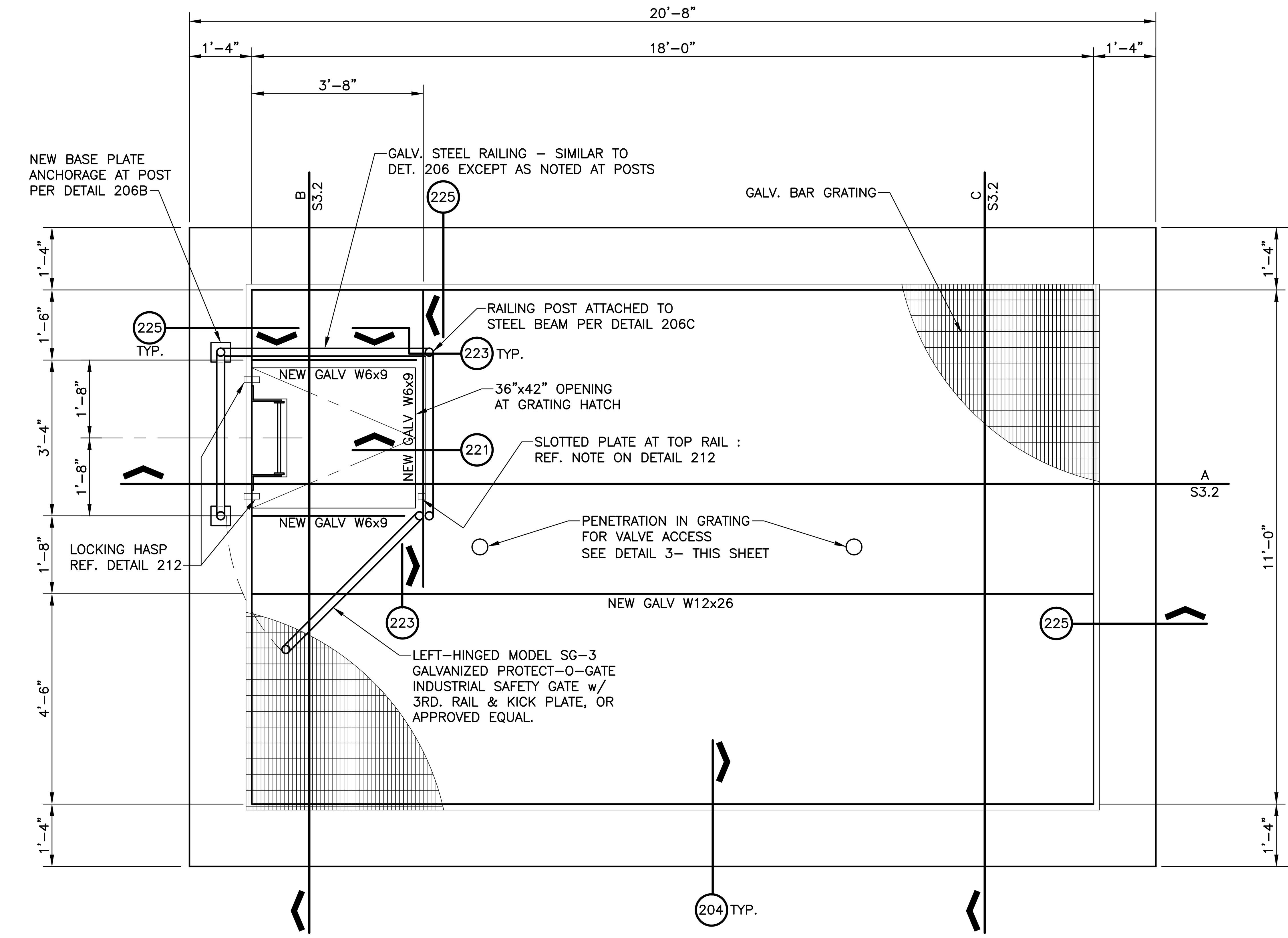
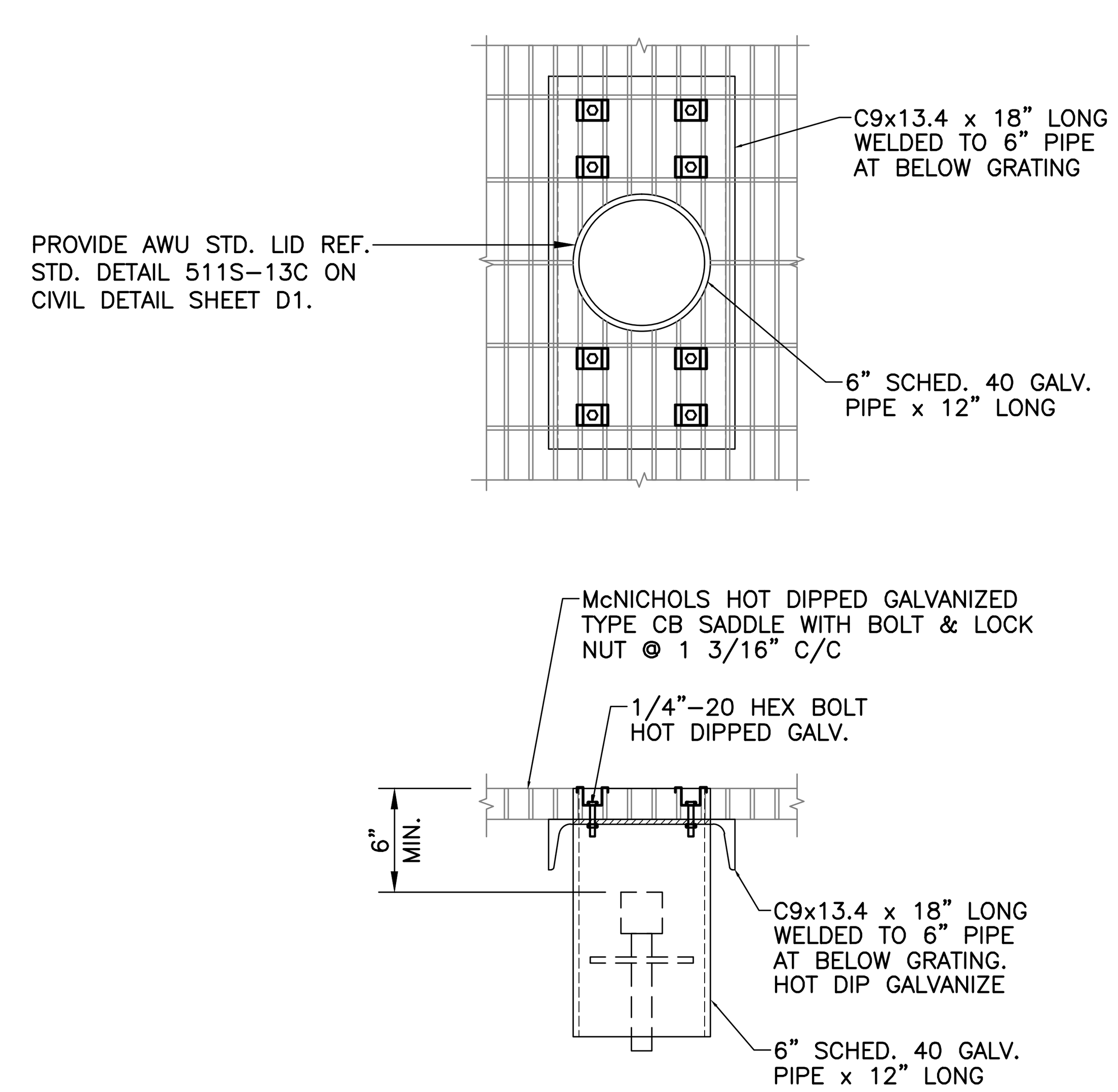


1 PRV VAULT FOUNDATION PLAN
SCALE: 1/2" = 1'-0"



2 PRV VAULT ROOF FRAMING PLAN
SCALE: 1/2" = 1'-0"



3 DETAIL
SCALE: 1 1/2" = 1'-0"

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STATE OF TEXAS
BENJAMIN MATTHEW BETZOLD
121236
LICENSED
PROFESSIONAL ENGINEER
8-15-2016

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PRV VAULT PLANS

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DATE 08/15/16
DESIGNED BB
DRAWN RH
REVISED RH
CHECKED BB
FILE NAME S3.1.dwg

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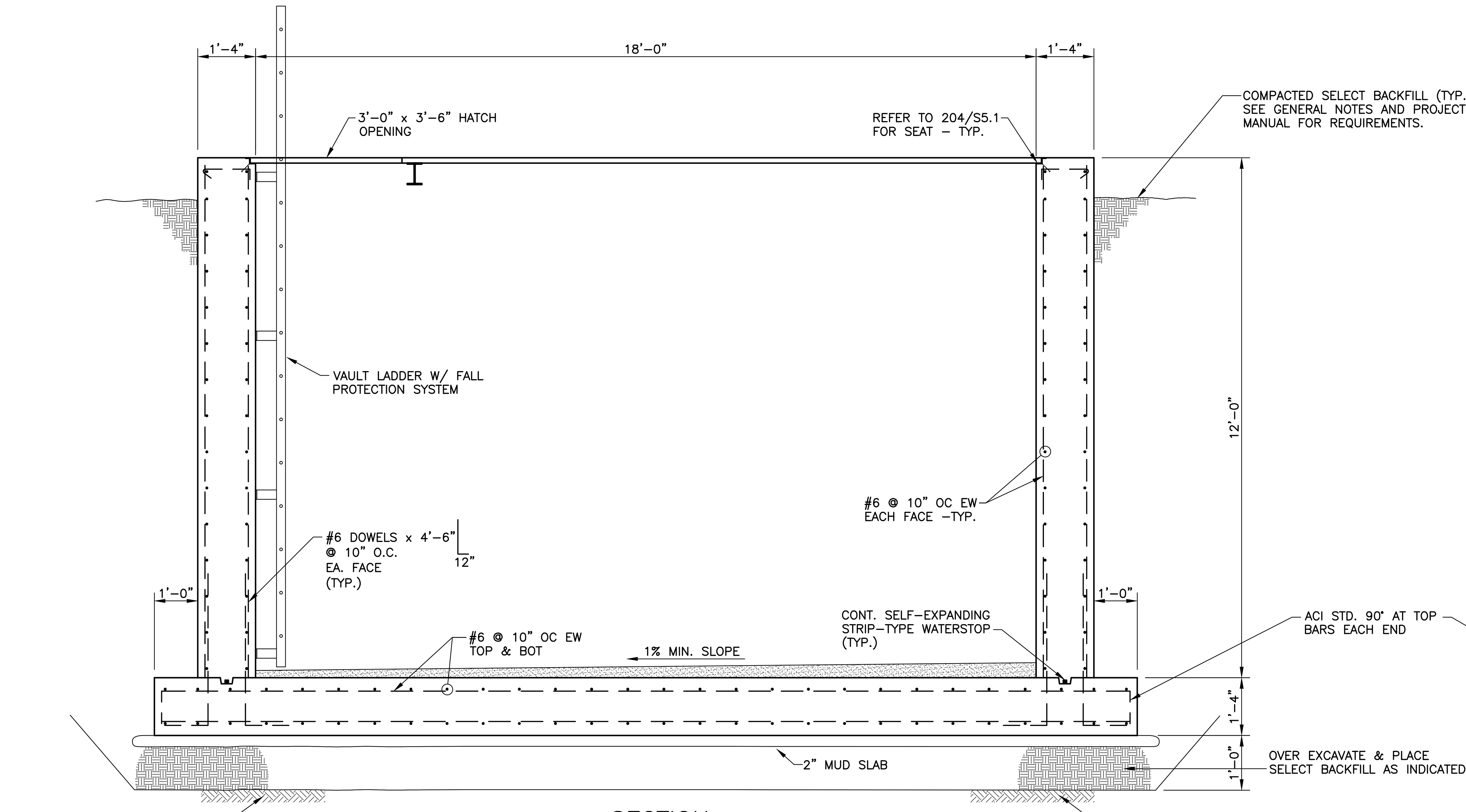
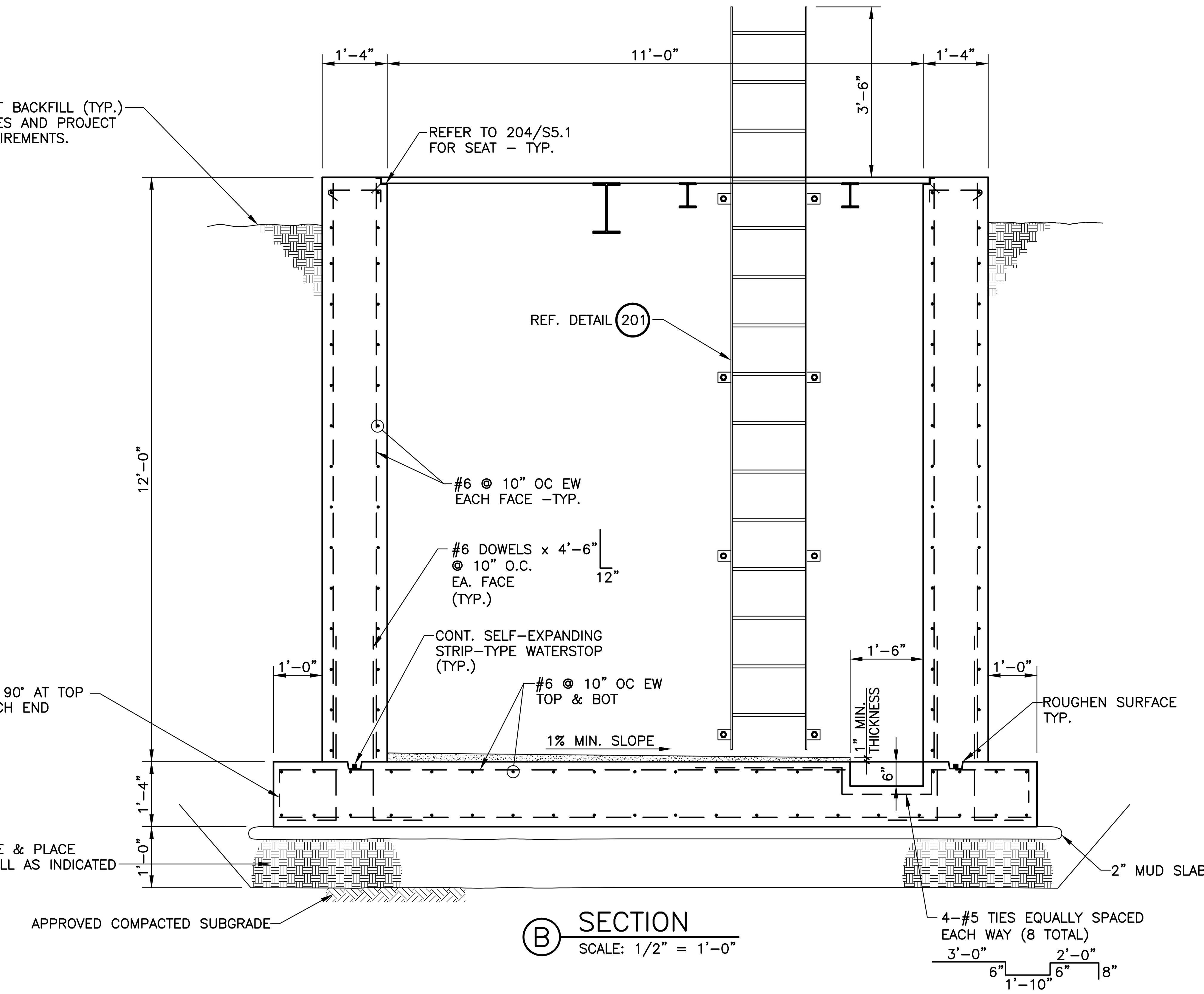


(A) SECTION
SCALE: 1/2" = 1'-0"



(B) SECTION
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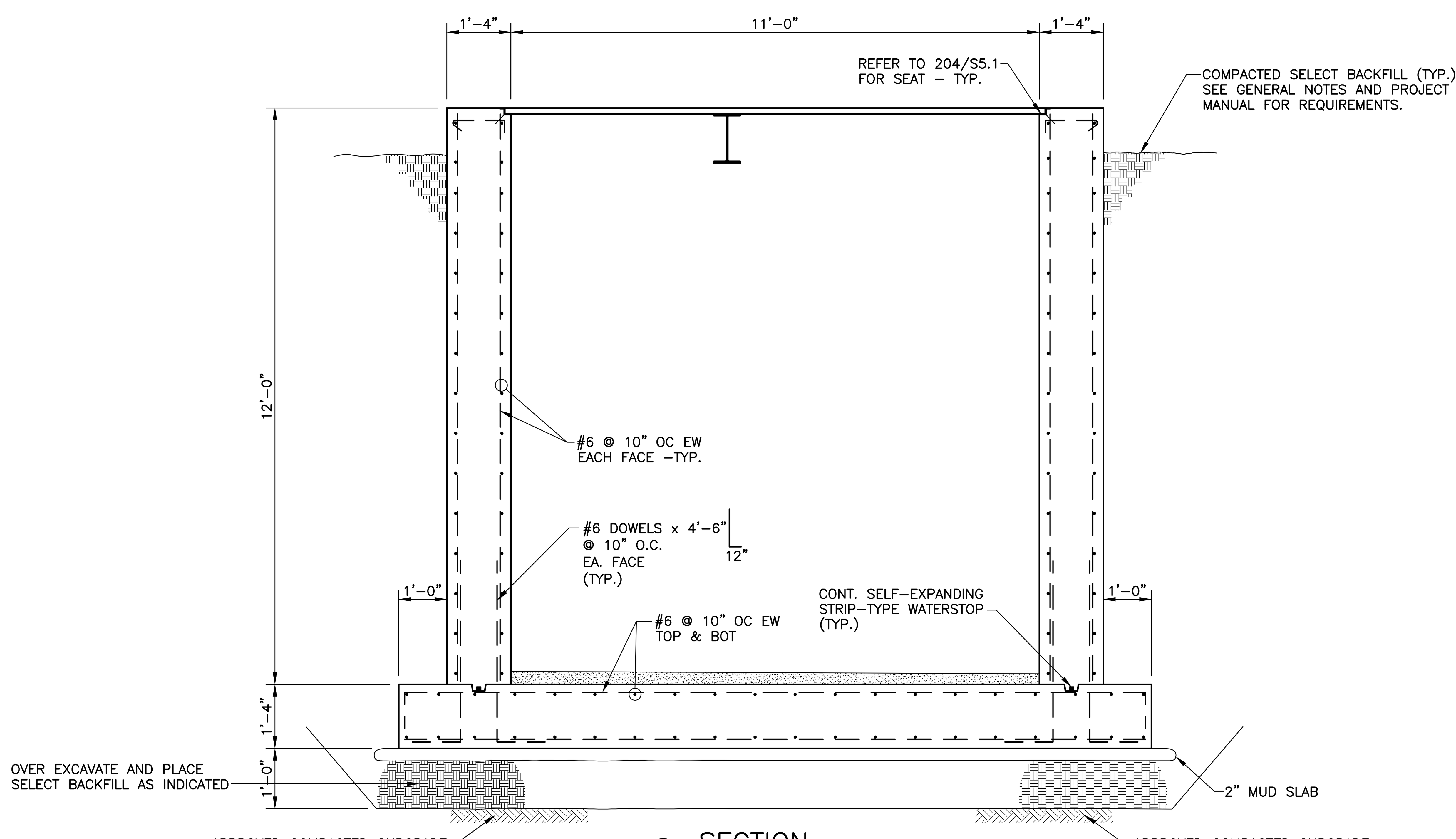

(C) SECTION
SCALE: 1/2" = 1'-0"

PIPING, CONDUITS, AND OTHER POTENTIAL OBSTRUCTIONS – TO BE ROUTED IN THE VICINITY OF LADDERS, SAFETY RAILS, AND PLATFORMS – SHALL BE COORDINATED WITH A CITY OF AUSTIN REPRESENTATIVE PRIOR TO INSTALLATION.

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STATE OF TEXAS – BENJAMIN MATTHEW BETZOLD – 121236 – LICENSED PROFESSIONAL ENGINEER – 8-15-2016

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THE CITY OF AUSTIN
FOUR POINT ELEVATED RESERVOIR IMPROVEMENTS
STRUCTURAL
PRV VAULT SECTIONS

NO.	ISSUE	BY	DATE

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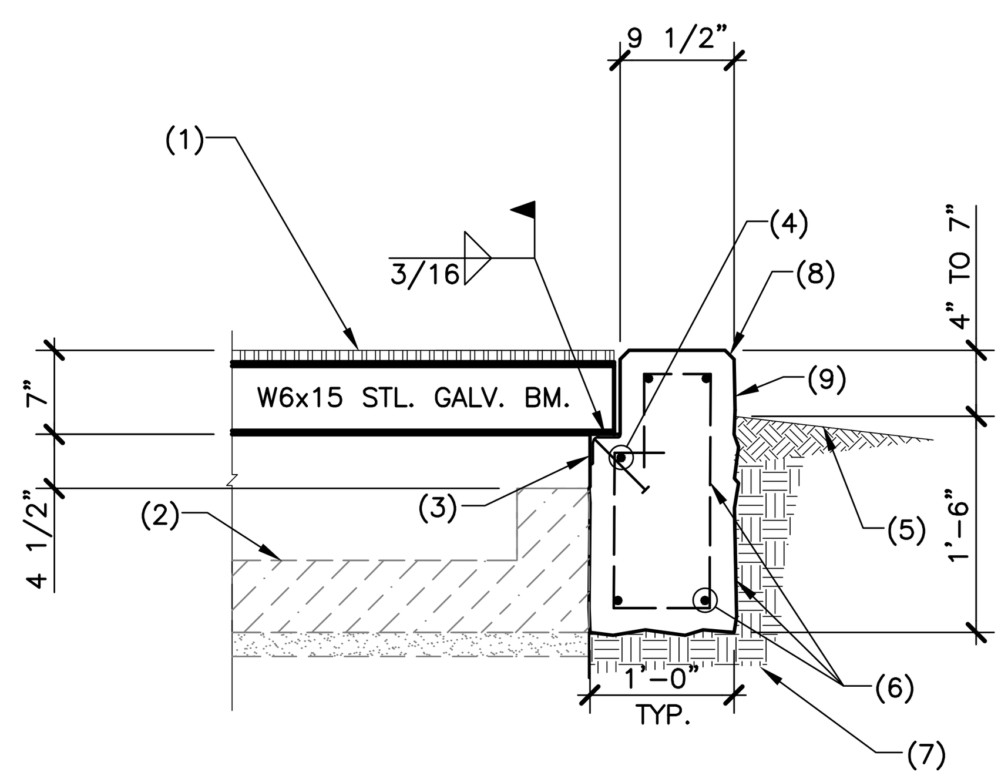
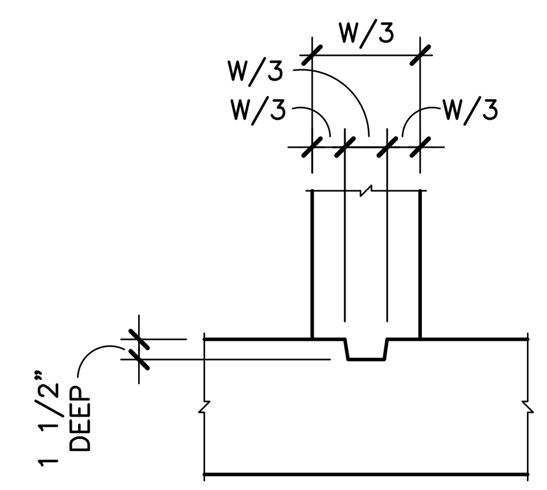
05/11/2012 1:16:33 P.M. LTS: 1 PSLTS: 1
Date: Aug 15, 2016 – 1:13pm User: rhinojosaFile: F:\16013_COA Four Points EST Repairs\DRAWINGS\CAD\S3.2.dwg

KEY NOTES (DETAIL 101)
1. GALV. BAR GRATING: 1"x1/8" BARS @ 1-3/16" O.C.
2. NEW CONC. FLUME: REF. CIVIL SHEET C2 FOR DETAIL
3. GALV. L2 1/2x2 1/2x1/4x10"W/ (2) 1/2"x6" H.C.A. (CTRD.) @ 4" O.C.
4. #4 CONTINOUS
5. SLOPE FINISHED GRADE AWAY FROM NEW CONCRETE GRADE BEAM.
6. NEW CONC. GRADE BEAM W/ (2) #5 HORIZ. CONT. REINF. TOP & BTM & #3 TIES @ 12"
7. COMPACTED FILL.
8. 3/4" CHAMFER – TYP.
9. PAINT FACE OF CONCRETE YELLOW.

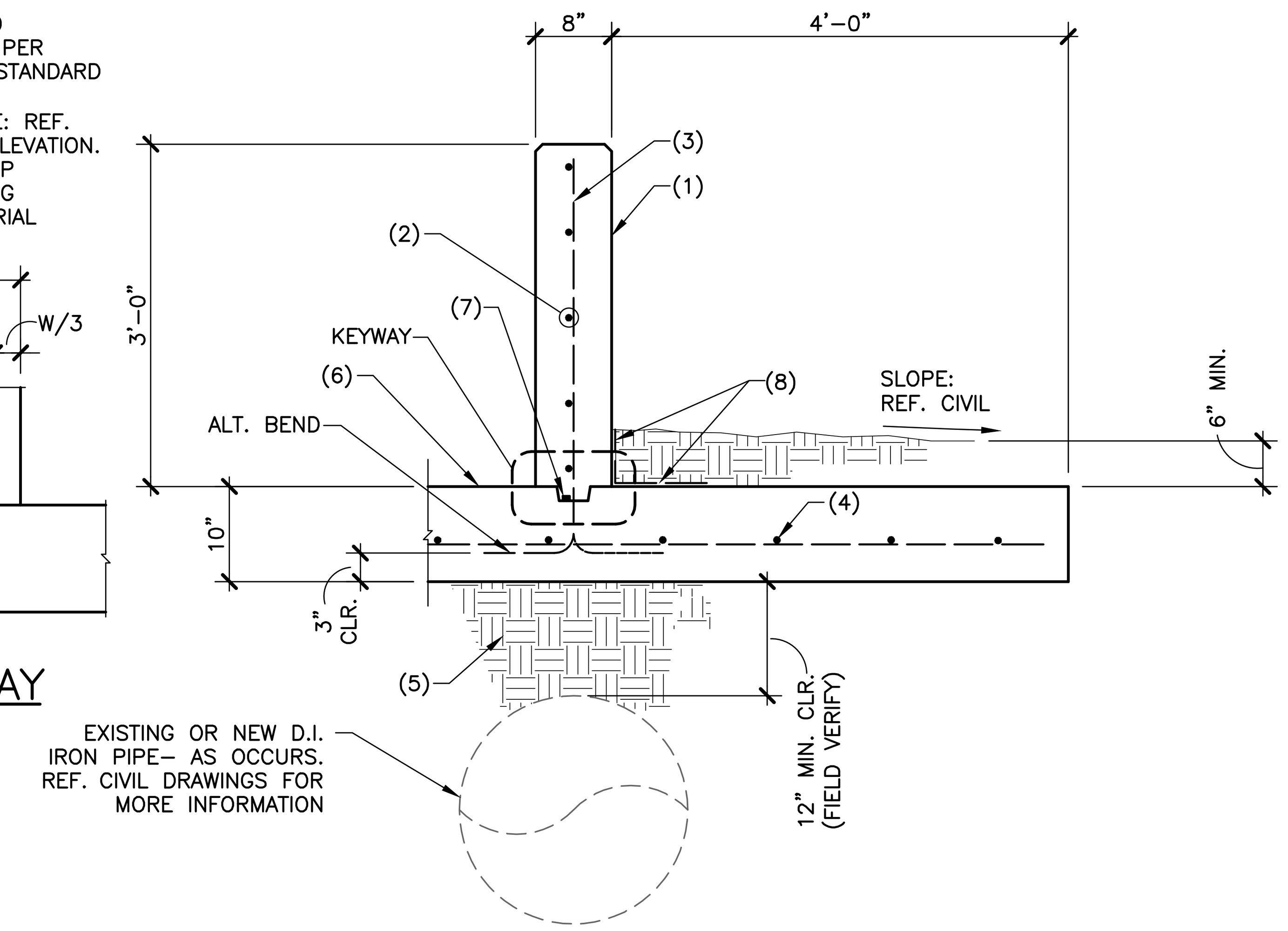


101 PEDESTRIAN BRIDGE @ OVERFLOW CHANNEL
SCALE: 3/4" = 1'-0"

KEY NOTES (DETAIL 102)
1. NEW 8" CONCRETE WALL.
2. #4 CONT. HORIZ. REINF. @ 9" O.C.
3. #4 CONT. VERT. REINF. @ 6" O.C. CENTERED. & w/ ACI STD. 90° HOOK AT FOOTING. ALT. BENDS
4. #5 @ 6" O.C. E.W. AT BOTTOM OF FOOTING.
5. APPROVED COMPACTED SUBGRADE PREPARED PER SPECIFICATION C.O.A. STANDARD SPEC. 201S (TYP.)
6. NEW CONCRETE FLUME: REF. CIVIL FOR SLOPE & ELEVATION. STRIP-TYPE WATERSTOP
7. CONT. SELF-EXPANDING
8. WATERPROOFING MATERIAL

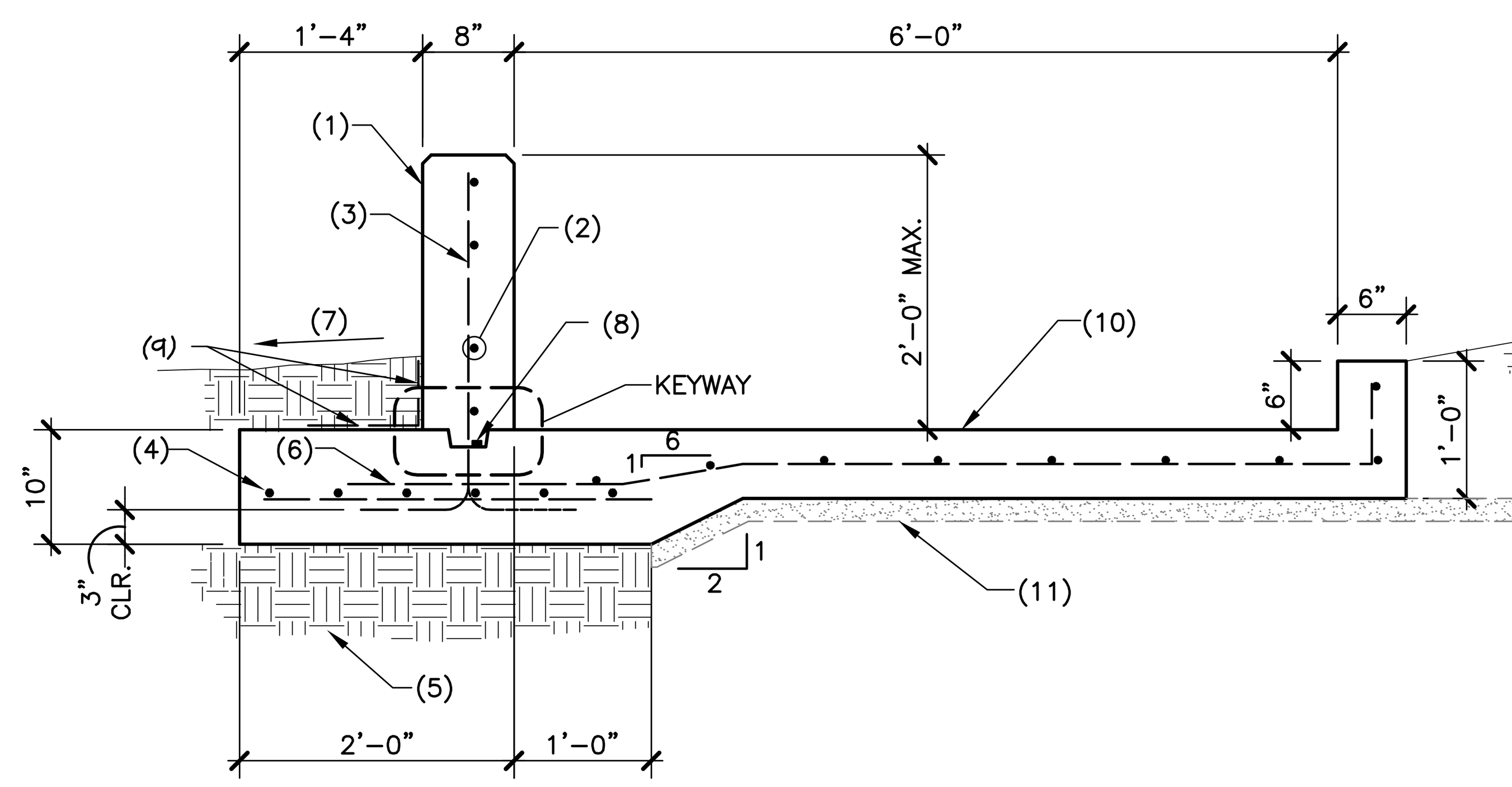


KEYWAY



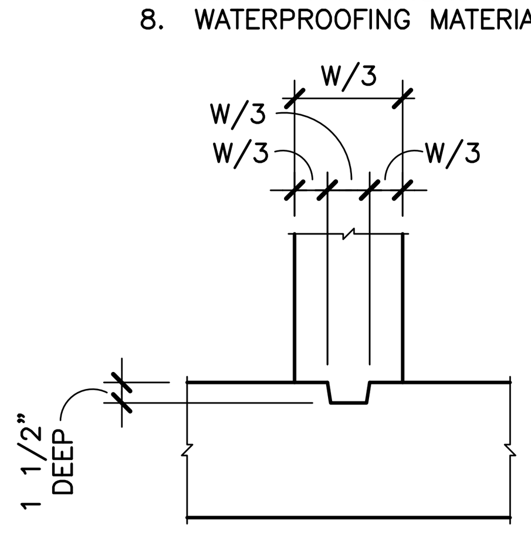
102 SPLASH WALL SECTION
SCALE: 3/4" = 1'-0"

KEY NOTES (DETAIL 103)
1. NEW 8" CONCRETE WALL.
2. #4 CONT. HORIZ. REINF. @ 9" O.C.
3. #4 CONT. VERT. REINF. @ 6" O.C. CENTERED. & w/ ACI STD. 90° HOOK AT FOOTING, ALT. BENDS.
4. #4 @ 6" O.C. E.W. AT BOTTOM OF FOOTING.
5. APPROVED COMPACTED SUBGRADE PREPARED PER SPECIFICATION C.O.A. STANDARD SPEC. 201S (TYP.)
6. MIN. 24" LAP AT OFFSET SLAB REINF.
7. SLOPE TO DRAIN AWAY FROM WALL
8. CONT. SELF-EXPANDING STRIP-TYPE WATERSTOP
9. WATERPROOFING MATERIAL
10. CONCRETE FLUME: REF. CIVIL SHEET C2 FOR FLOW LINE ELEVATIONS
11. SAND CUSHION: REF. CIVIL

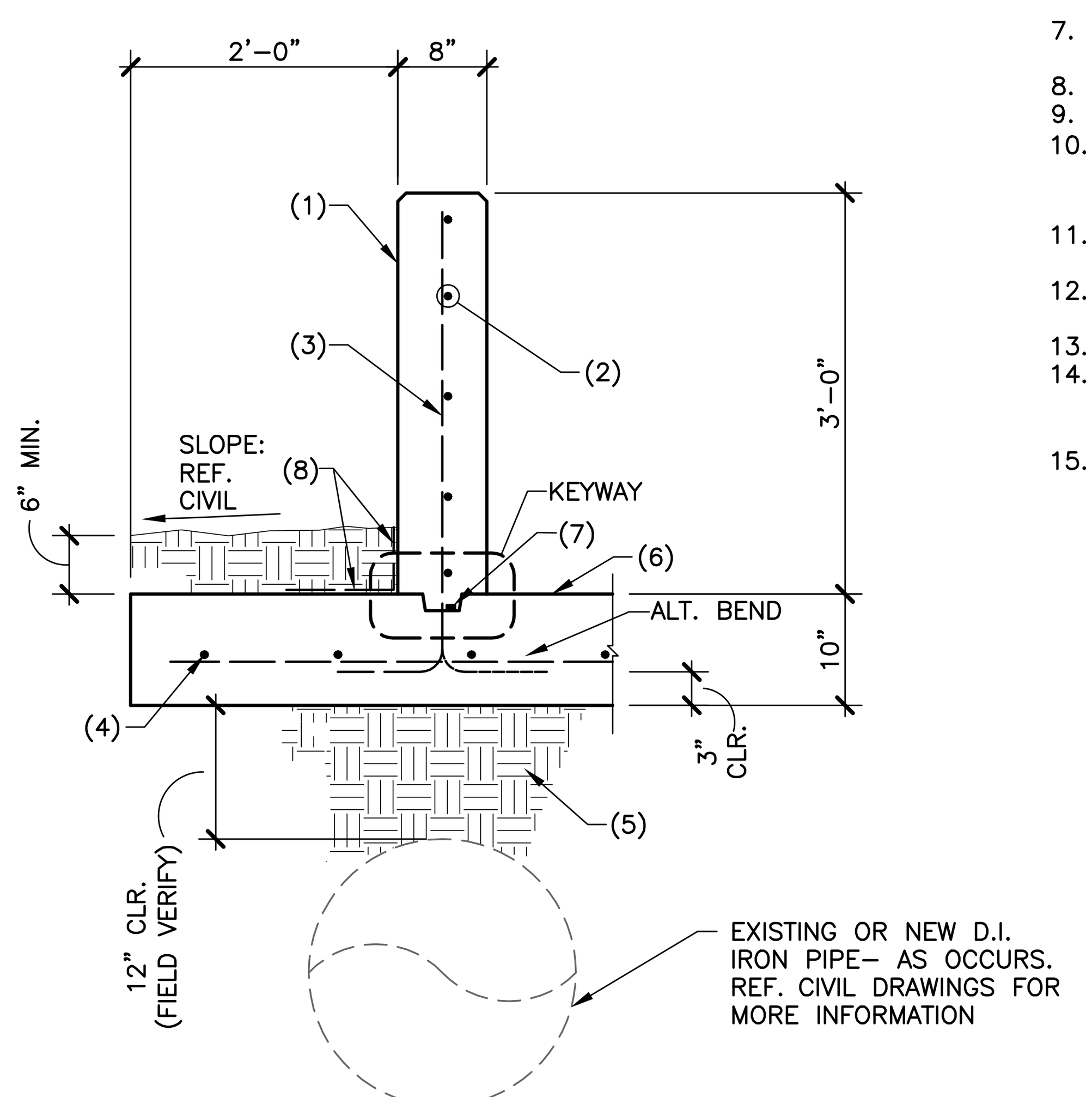


103 SPLASH WALL AT GROUND STORAGE TANK
SCALE: 3/4" = 1'-0"

KEY NOTES (DETAIL 104)
1. NEW 8" CONCRETE WALL.
2. #4 CONT. HORIZ. REINF. @ 9" O.C.
3. #4 CONT. VERT. REINF. @ 6" O.C. CENTERED. & w/ ACI STD. 90° HOOK AT FOOTING. ALT. BENDS
4. #4 @ 6" O.C. E.W. AT BOTTOM OF FOOTING.
5. APPROVED COMPACTED SUBGRADE PREPARED PER SPECIFICATION C.O.A. STANDARD SPEC. 201S (TYP.)
6. NEW CONCRETE FLUME: REF. CIVIL FOR SLOPE
7. CONT. SELF-EXPANDING STRIP-TYPE WATERSTOP
8. WATERPROOFING MATERIAL

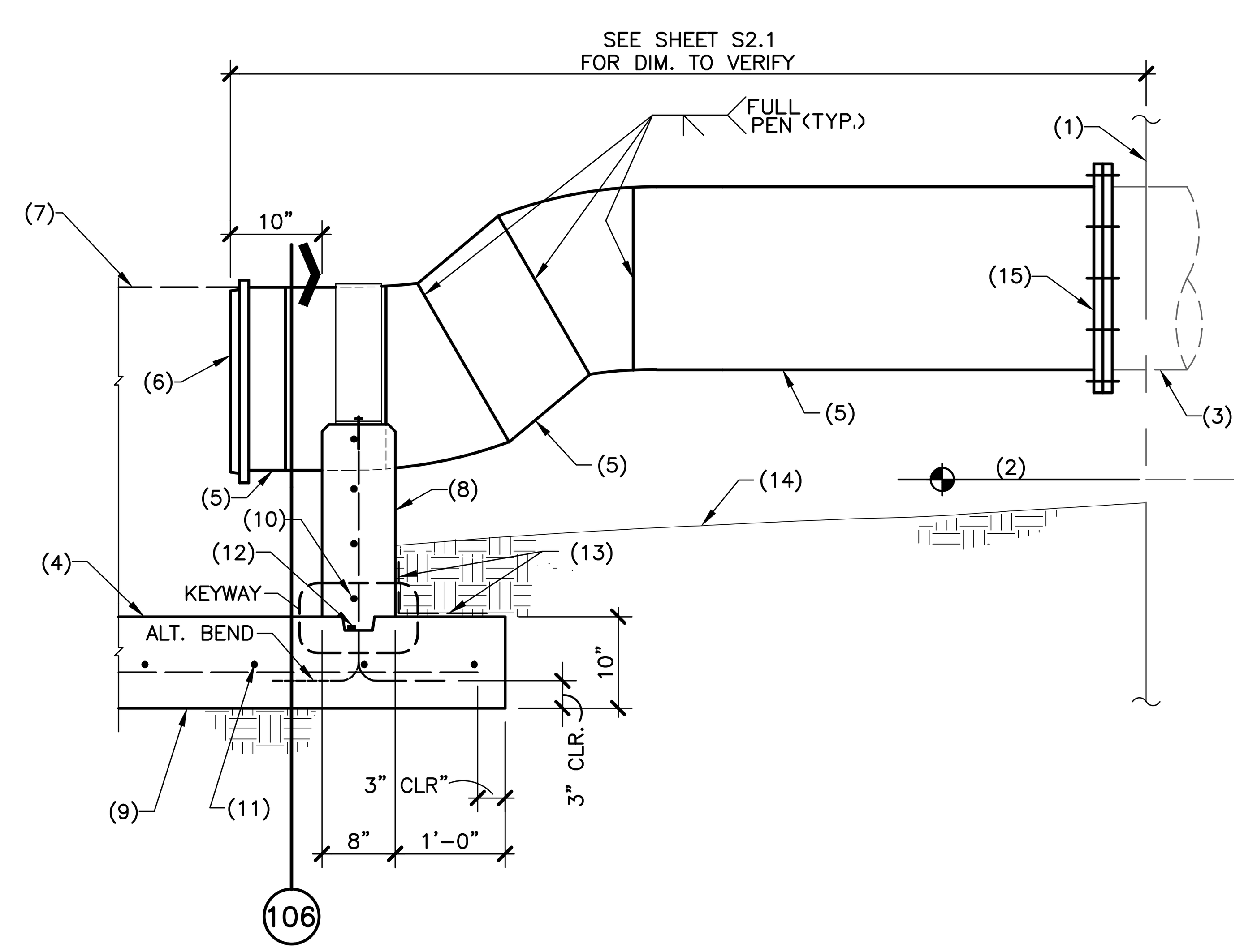


KEYWAY



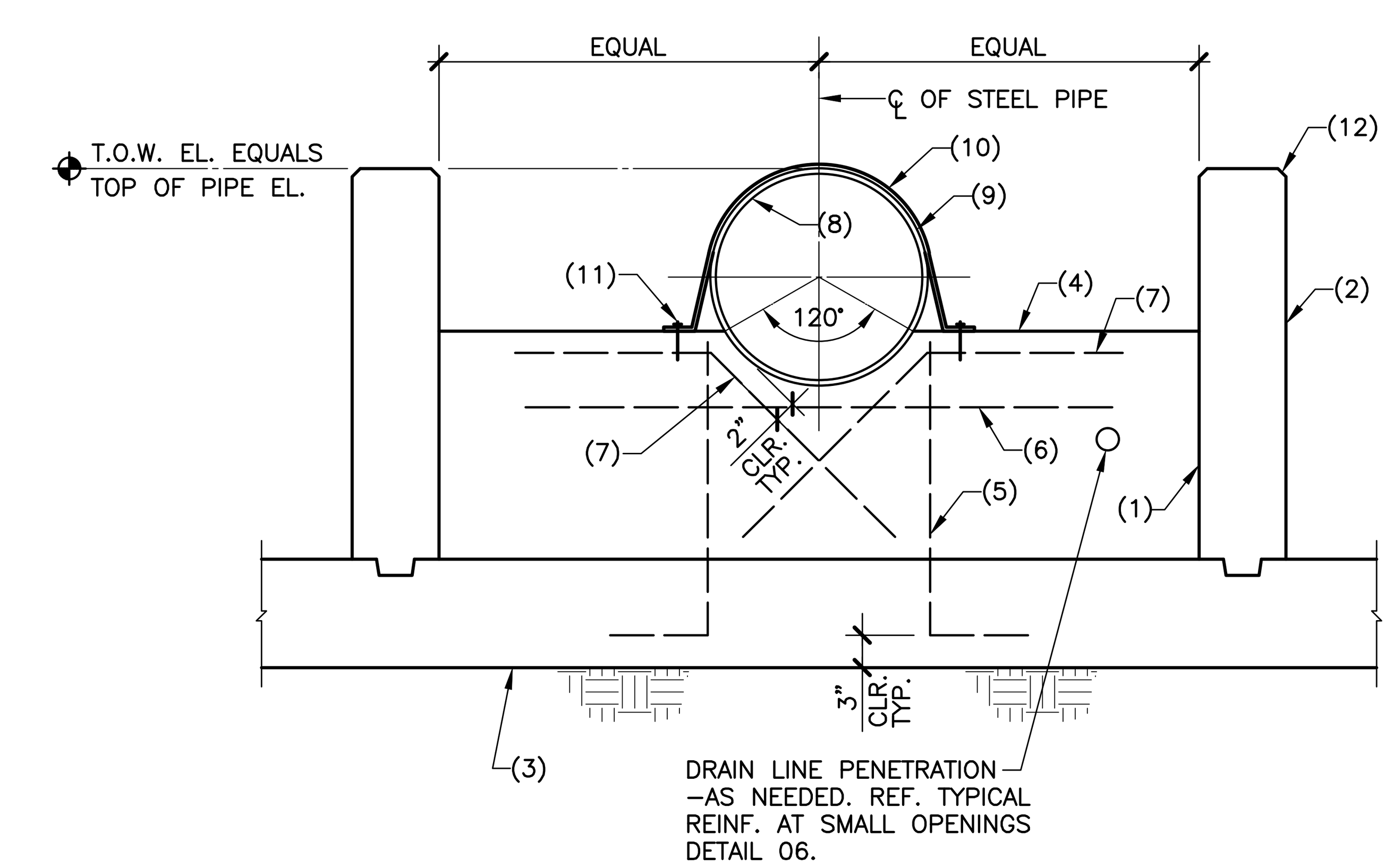
104 SPLASH WALL SECTION
SCALE: 3/4" = 1'-0"

KEY NOTES (DETAIL 105)
1. EXISTING PEDESTAL WALL
2. TANK PEDESTAL GROUND FLOOR ELEVATION 1092.00 (F.V.)
3. EXISTING PORTION OF OVERFLOW PIPE. REMOVE EXISTING FLAP GATE AND PREP PIPE FOR ATTACHMENT OF NEW EXTENSION PIPE.
4. NEW CONC. FLUME: REF. CIVIL FOR SLOPE AND FOR ELEVATION.
5. 20" DIA. STEEL PIPE EXTENSION MATCH TYPE AND CLASS OF EXISTING. DIMENSIONS SHALL CONFORM TO AWWA C208.
6. NEW WATERMAN OVERFLOW FLAP GATE OR APPROVED EQUAL.
7. PORTION OF CONCRETE SPLASH WALL BEYOND.
8. CONCRETE WALL
9. CONCRETE FOOTING
10. #4 VERT. AND HORIZ. REINF. @ 6 O.C. w/ ACI 90° STD. HOOK AT FOOTING. ALT. BENDS.
11. #4 @ 6" O.C. EA. WAY AT BOT. OF FOOTING
12. CONT. SELF-EXPANDING STRIP-TYPE WATERSTOP
13. WATERPROOFING MATERIAL
14. MIN. COVER OVER DRAINAGE PIPES AS REQ'D. BY C.O.A. AND OTHER CONSULTANTS.
15. NEW PIPE FLANGE TO EXISTING PIPE FLANGE C.O.A. APPROVED CONNECTION BY OTHERS.



105 OVERFLOW PIPE EXTENSION AND SUPPORT
SCALE: 3/4" = 1'-0"

KEY NOTES (DETAIL 106)
1. KEYWAY AND CORNER REINFORCEMENT AT CONSTRUCTION JOINT.
2. CONCRETE WALL
3. CONCRETE FOOTING.
4. CONCRETE CRADLE WALL. SECURE PIPE & ADD MIN. 1/8" THICK NEOPRENE LAYER PRIOR TO PLACEMENT.
5. (2) #4 ADD'L. BARS w/ ACI STD. 90° HOOK INTO FOOTING.
6. #4 x 4'-6" ADD'L. HORIZ. REINF.
7. #4 x 3'-6" ADD'L. DIAGONAL REINF.
8. STEEL PIPE
9. WRAP 1/4" THICK NEOPRENE LAYER ALL THE WAY AROUND PIPE BETWEEN PIPE AND SADDLE AND PIPE AND CRADLE.
10. 3/8" THICK x 5" WIDE SS STRAP
11. 3/4"ø SS ALL-THREAD ANCHOR. EMBED WITH EPOXY 5".
12. 3/4" CHAMFER



NOTE :
REF. WALL SECTION DETAILS FOR REINF. CENTER ADD'L. HORIZ. & DIAGONAL BARS ABOUT PIPE ℄.

106 PIPE SADDLE, CRADLE, AND ADD'L. REINF.
SCALE: 3/4" = 1'-0"

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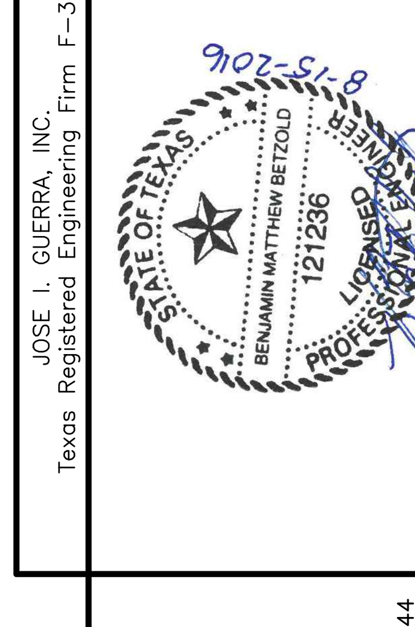

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THE CITY OF AUSTIN
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STRUCTURAL
SITE DETAILS

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VERIFY SCALE 0 1
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[SAM12104][]C:\USERS\02160\DESKTOP\AUSTIN\34BORDER.DWG LAYOUT: Model
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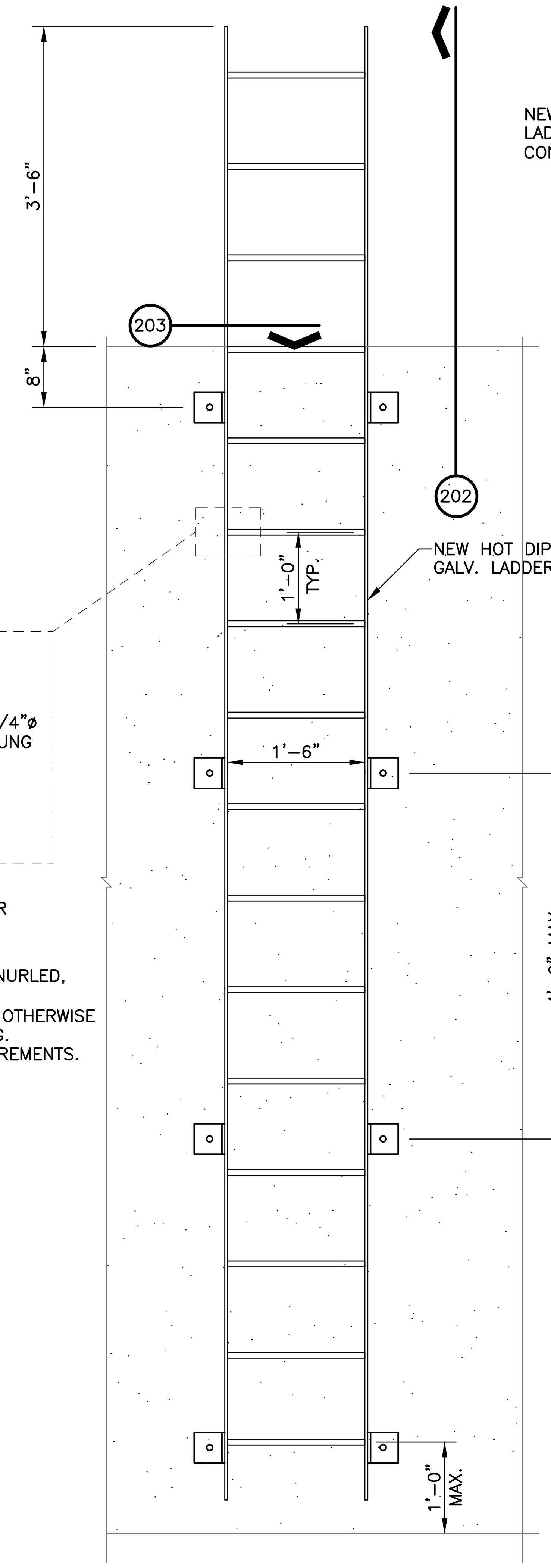
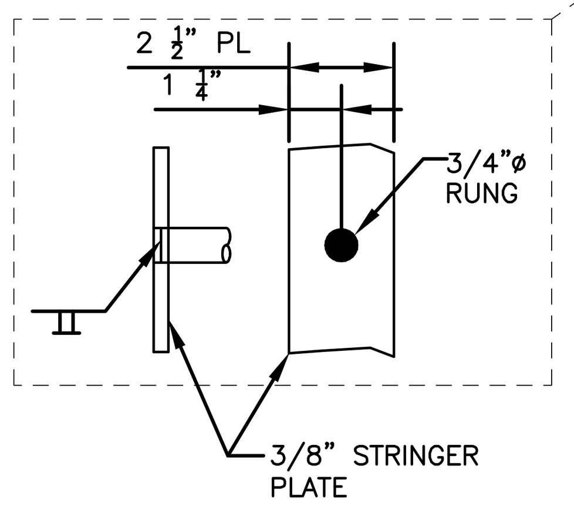
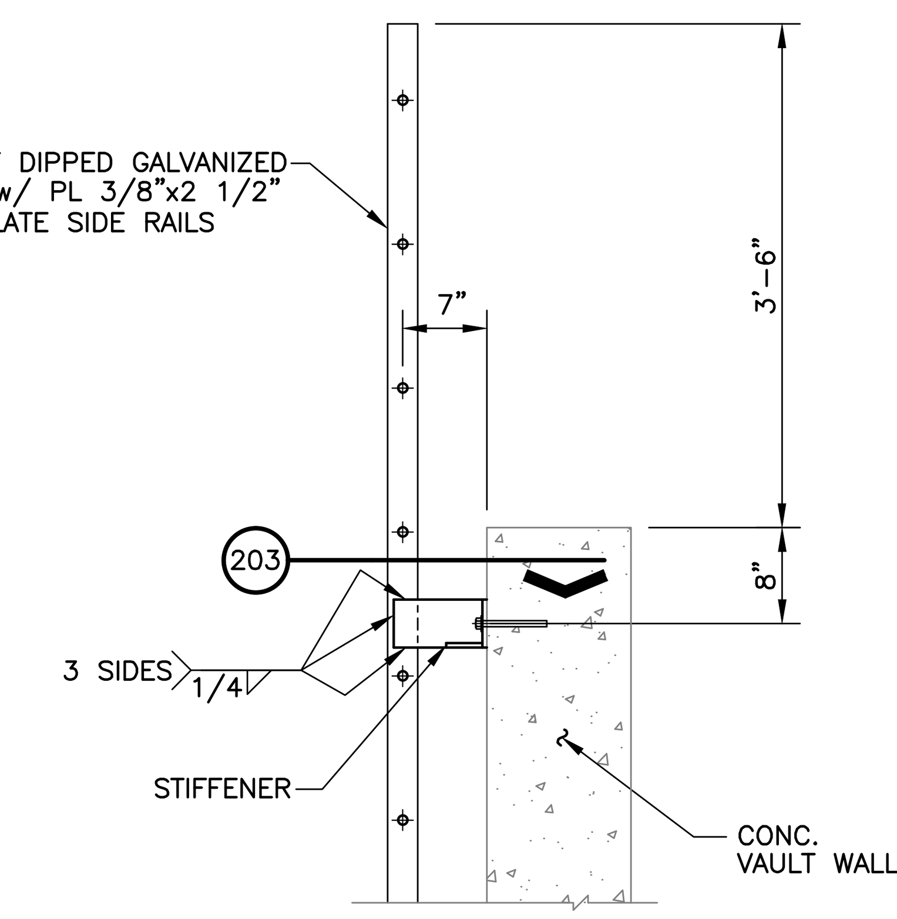


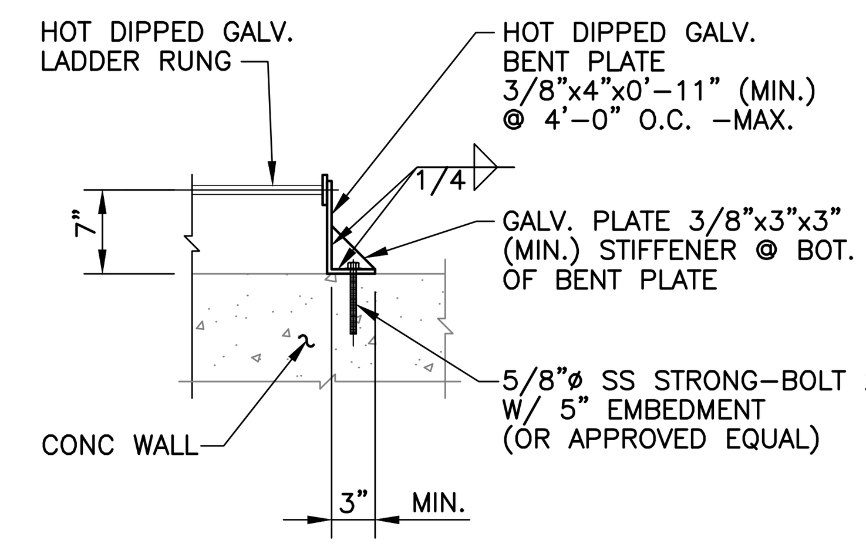


NOTES:
1. LADDER RUNGS ARE TO BE KNURLED, DIMPLED CORRUGATED W/ SKID–RESISTANT MATERIAL OR OTHERWISE TREATED TO MINIMIZE SLIPPING.
2. LADDER TO MEET OSHA REQUIREMENTS.

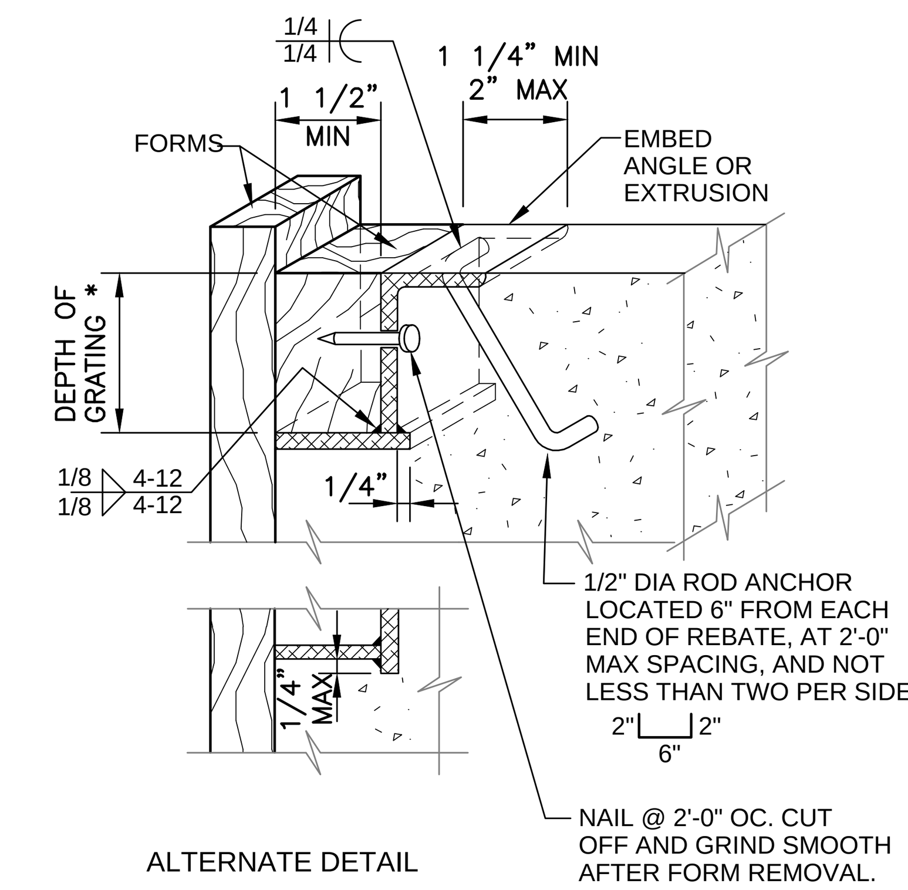
201 ELEVATION OF LADDER
SCALE: 3/4" = 1'–0"



202 SECTION
SCALE: 3/4" = 1'–0"



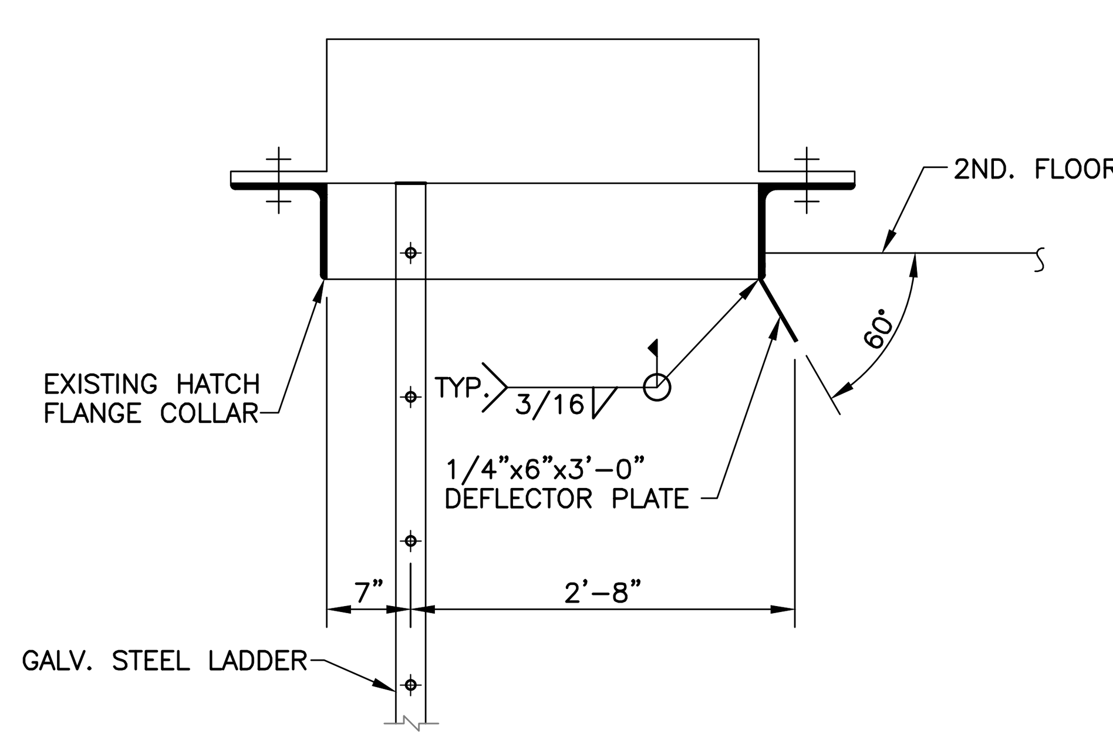
203 DETAIL
SCALE: 3/4" = 1'–0"



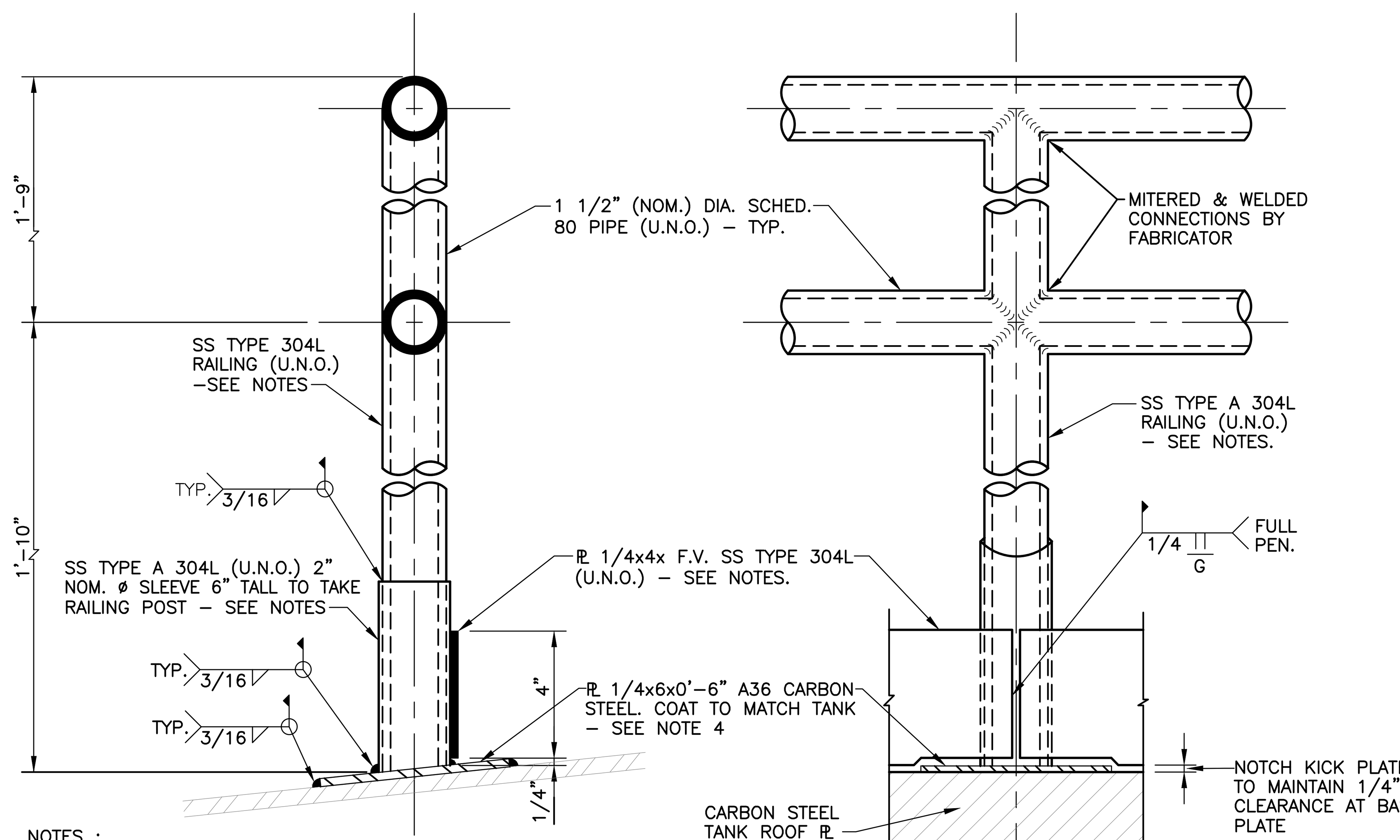
GRATING REBATE

NOTES:
1. REBATE ANGLE AND PLATE MATERIAL SHALL MATCH GRATING MATERIAL (IE USE SS ANGLE, PLATE AND ROD ANCHORS TO SUPPORT GRATING CALLED OUT AS SS GRATING, ETC).
2. REBATE ANGLE TO BE CONTINUOUS AROUND ENTIRE OPENING.
3. ANGLE AND BEARING PLATE SHALL BE 1/4" MIN THICK.
4. REBATE MAY BE EXTRUDED, SUBJECT TO ENGINEER'S ACCEPTANCE.
5. COAT ALL ALUMINUM IN CONTACT WITH CONCRETE PER SPECIFICATIONS.
6. * = DIMENSION AS REQUIRED BY GRATING MANUFACTURER.

204 GRATING REBATE AND SEAT
NO SCALE

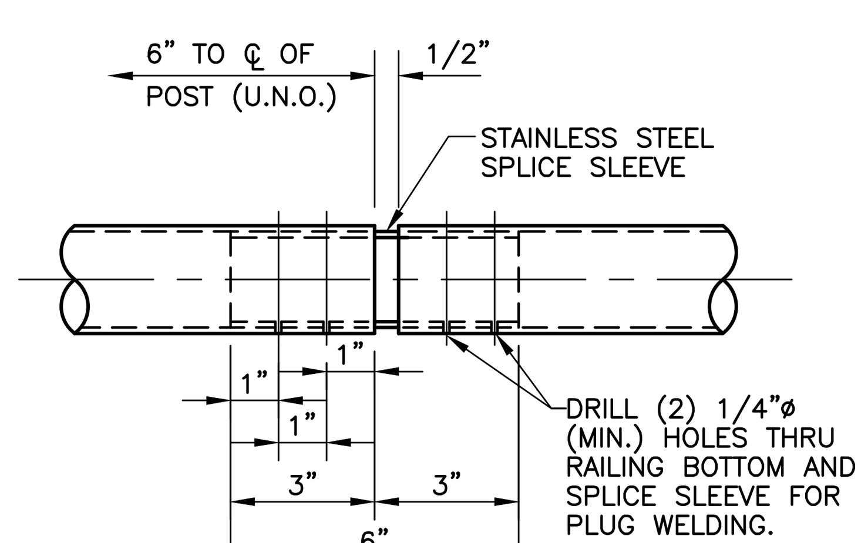


205 DEFLECTOR PLATE DETAIL
SCALE: 3/4" = 1'–0"



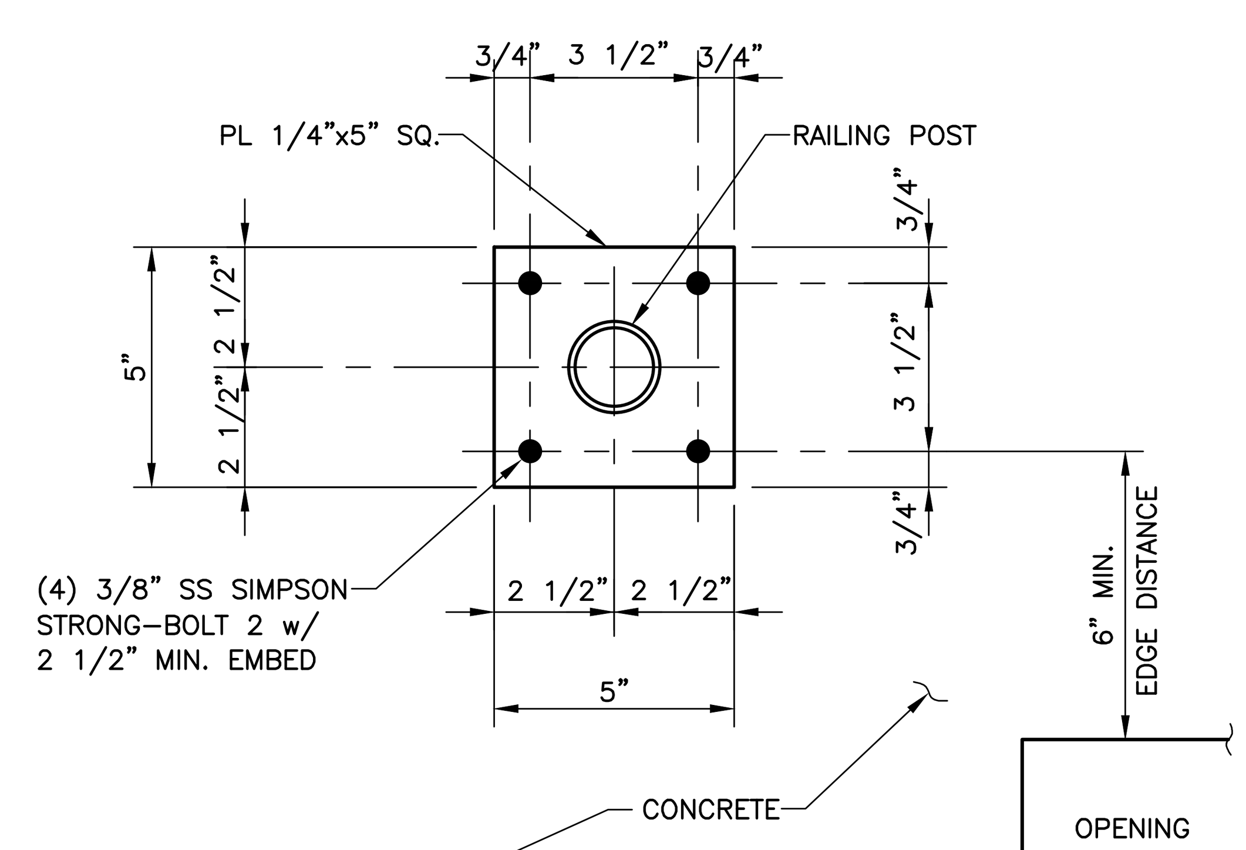
NOTES :
1. RAILING MATERIAL SHALL BE SS 304L AT ALL LOCATIONS EXCEPT SS 316 SHALL BE USED INSIDE TANK AND GALVANIZED SHALL BE USED WHERE NOTED.
2. SEE 206A FOR EXPANSION JOINT SPLICE SLEEVE.
3. VERTICAL RAILING POST SLEEVE REQUIRED AT ROOF ONLY.
4. AT NEW PLATFORM, WELD POST DIRECTLY TO SUPPORT FRAMING. BASE PLATE NOT REQ'D.

206 RAILING DETAILS
SCALE: 3" = 1'–0"

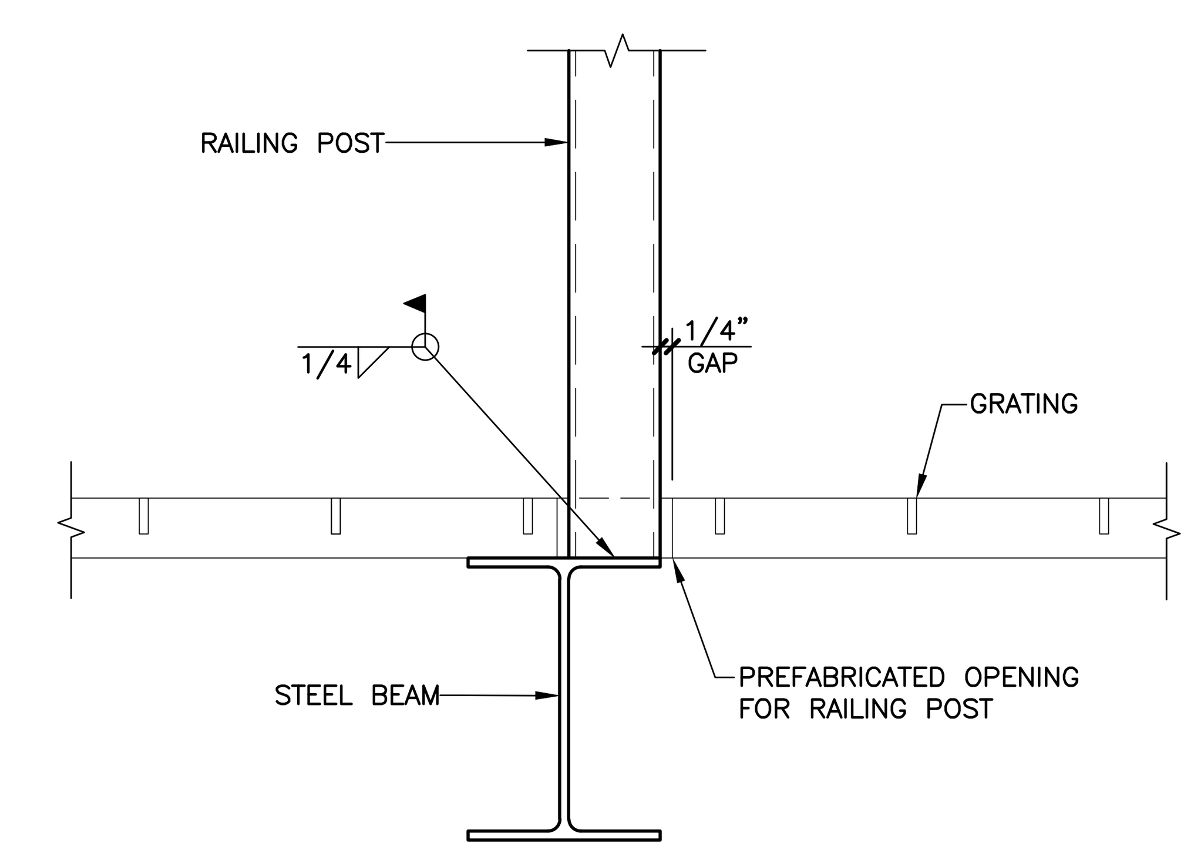


NOTE:
1. BEVEL EDGES OF RAIL AT SLEEVE.
2. ALL SHARP EDGES SHALL BE REMOVED.

206A EXPANSION JOINT SPLICE SLEEVE
SCALE: 3" = 1'–0"



206B RAILING POST BASE PLATE PLAN DETAIL
SCALE: 3" = 1'–0"



NOTE : TOE PLATE NOT SHOWN FOR CLARITY.

206C POST AT STEEL BEAM SECTION
SCALE: 3" = 1'–0"

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STATE OF TEXAS
BENJAMIN MATTHEW BETZOLD
121236
LICENSED PROFESSIONAL ENGINEER
8-15-2016

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FOUR POINT ELEVATED RESERVOIR IMPROVEMENTS
STRUCTURAL
LADDER, RAILING, AND GRATING
SHEET 1 OF 4

NO.	ISSUE	BY	DATE

F&N JOB NO. AU116177
DATE 08/15/16
DESIGNED BB
DRAWN RH
REVISED RH
CHECKED BB
FILE NAME S5.1.dwg

VERIFY SCALE 0 1
Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.

SHEET S5.1
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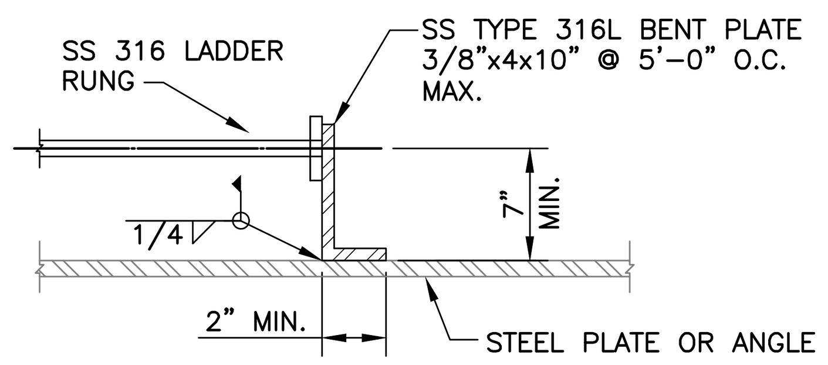
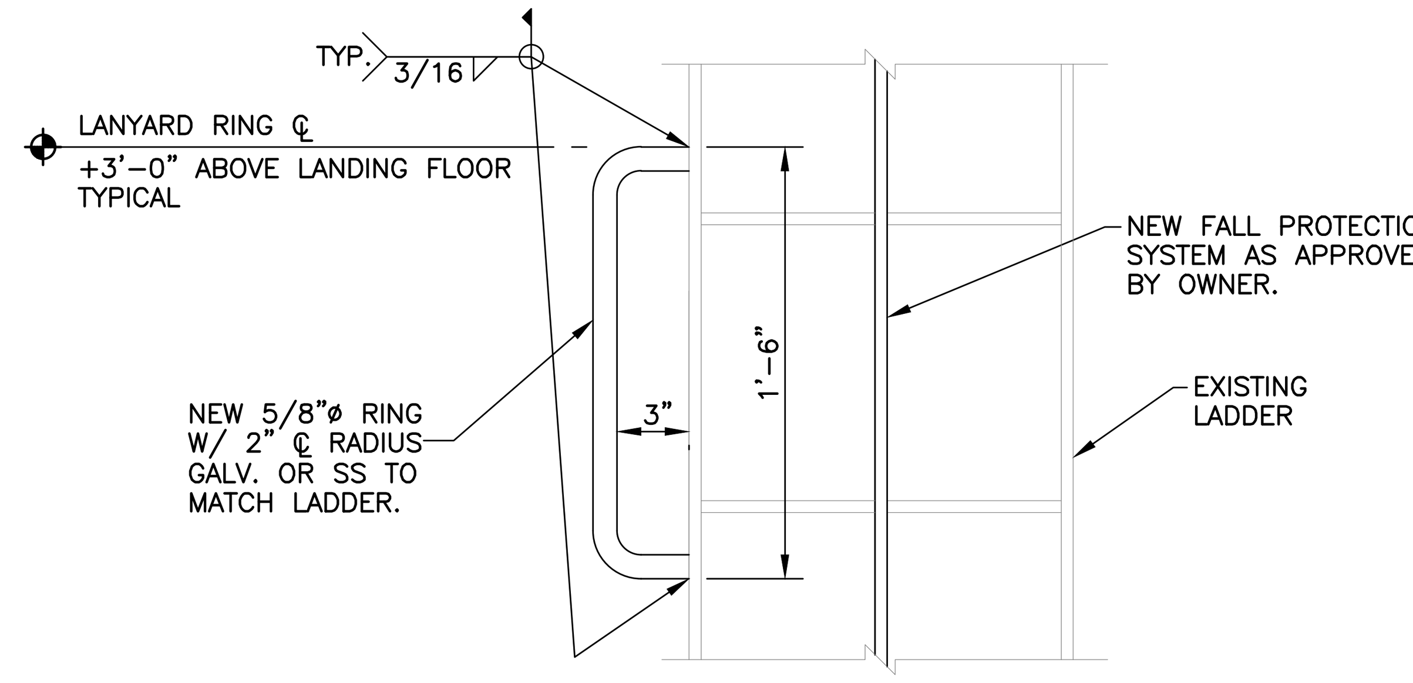
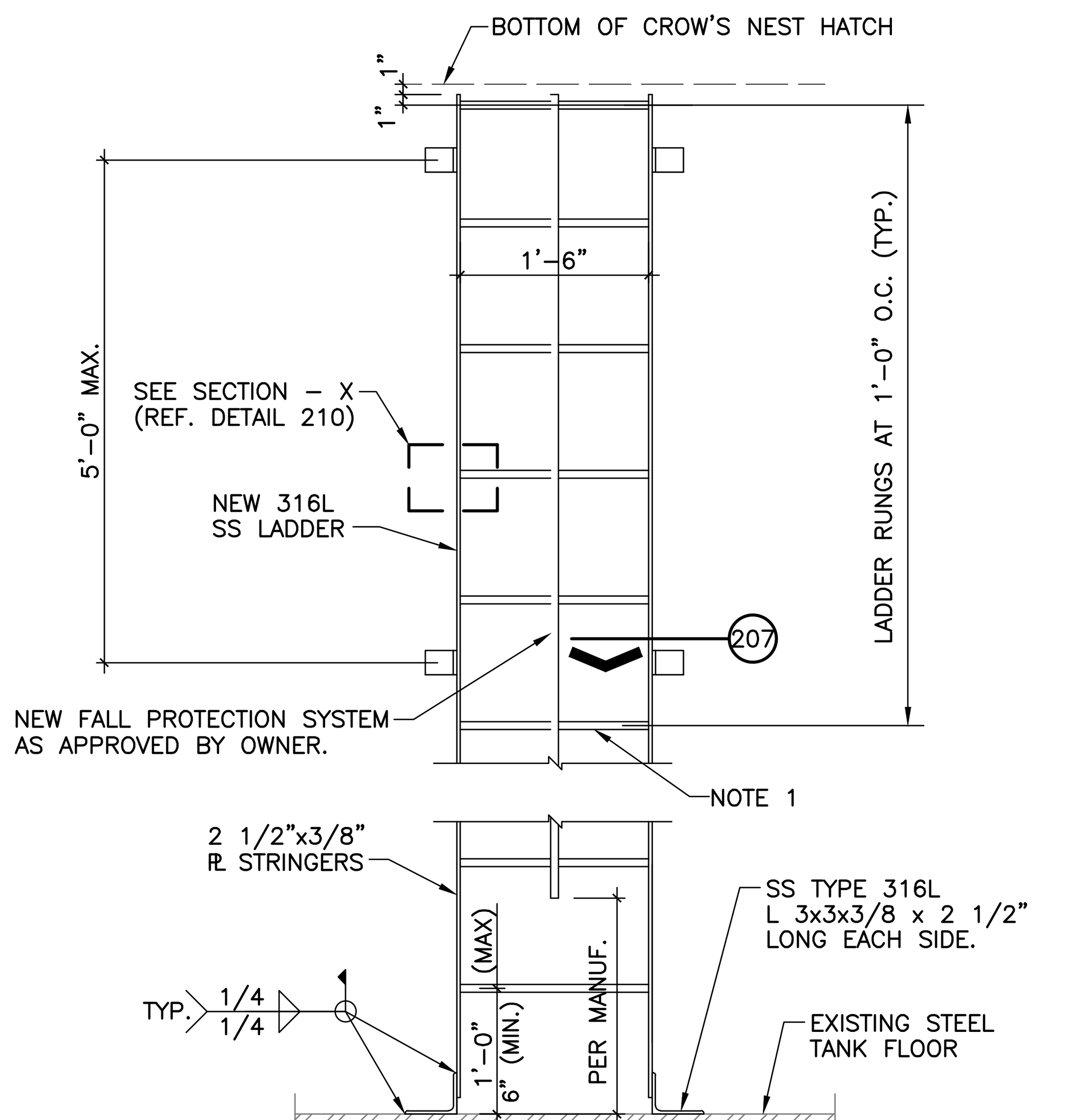


207 DETAIL
SCALE: 1" = 1'-0"

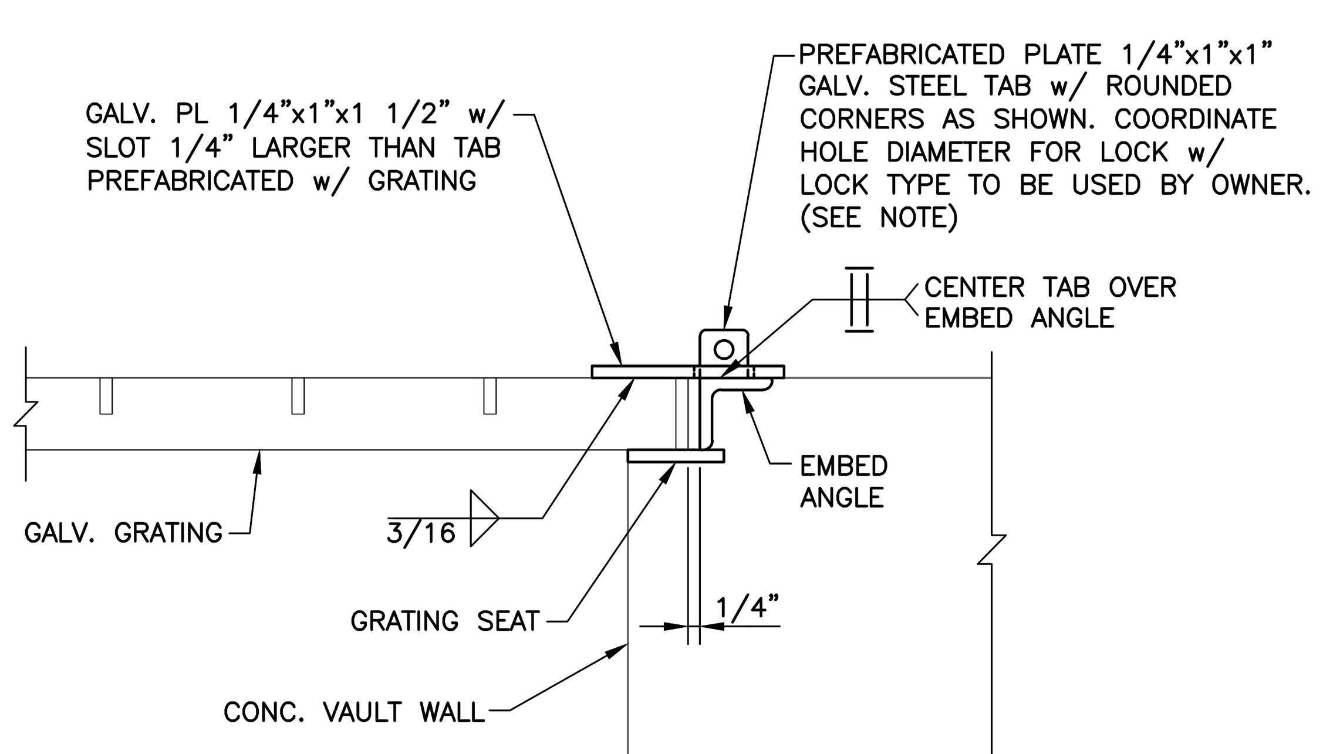


208 LANDING LANYARD RING DETAIL
SCALE: 1 1/2" = 1'-0"



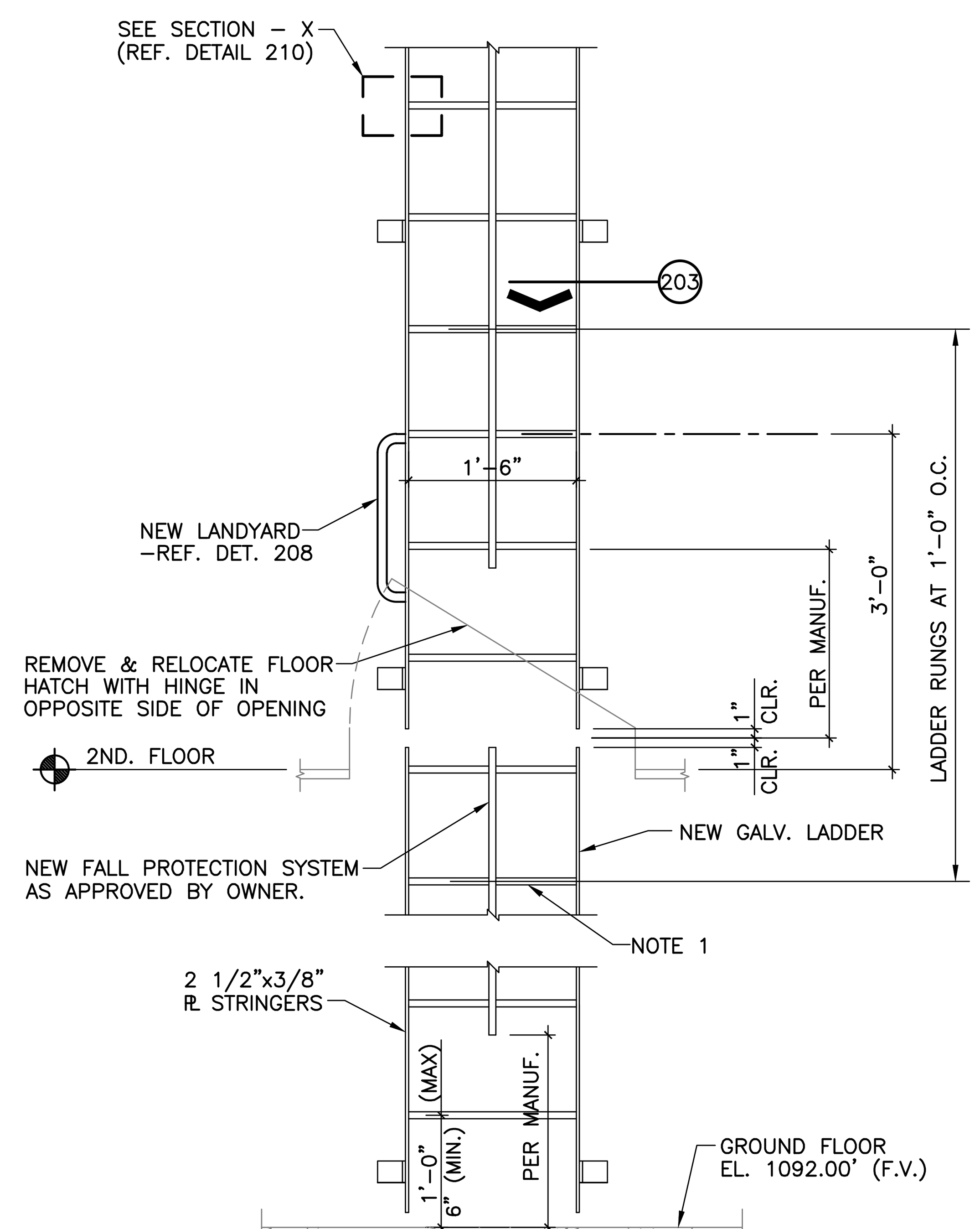
NOTES:
1. LADDER RUNGS ARE TO BE KNURLED, DIMPLED CORRUGATED W/ SKID–RESISTANT MATERIAL OR OTHERWISE TREATED TO MINIMIZE SLIPPING.
2. LADDER TO MEET OSHA REQUIREMENTS.

211 LADDER BELOW CROW NEST
SCALE : 3/4" = 1'-0"



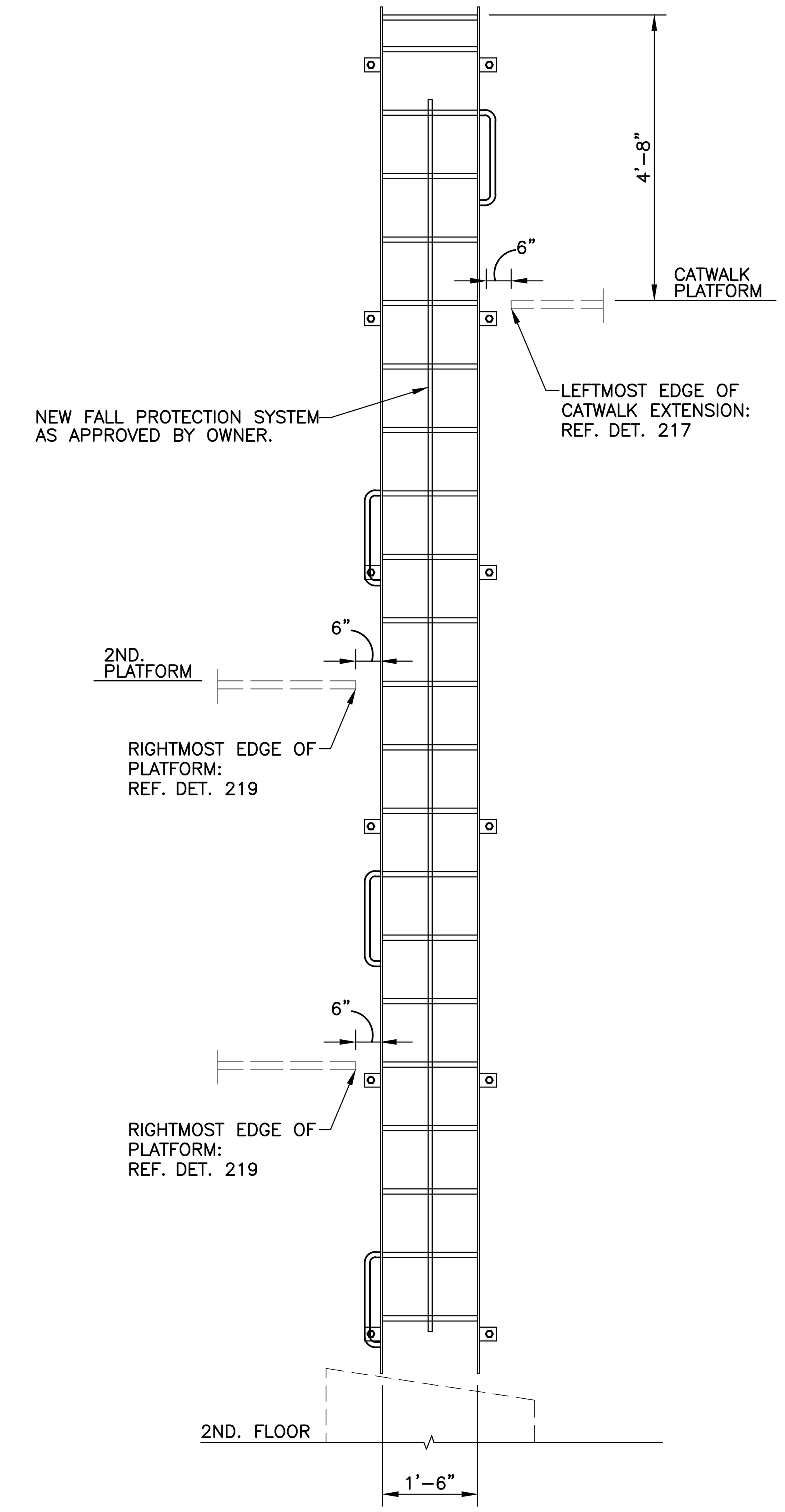
212 LOCKING HASP DETAIL
SCALE : 3/4" = 1'-0"

NOTES:
1. PROVIDE AN ADDITIONAL, IDENTICAL GALV. STEEL TAB AND INSTALL AT TOP RAILING & ENSURE TO INSTALL PROPERLY ALIGNED w/ SLOTTED PLATE NEAREST SAFETY GATE TO ENABLE LOCKING THE HASP IN AN OPEN POSITION.

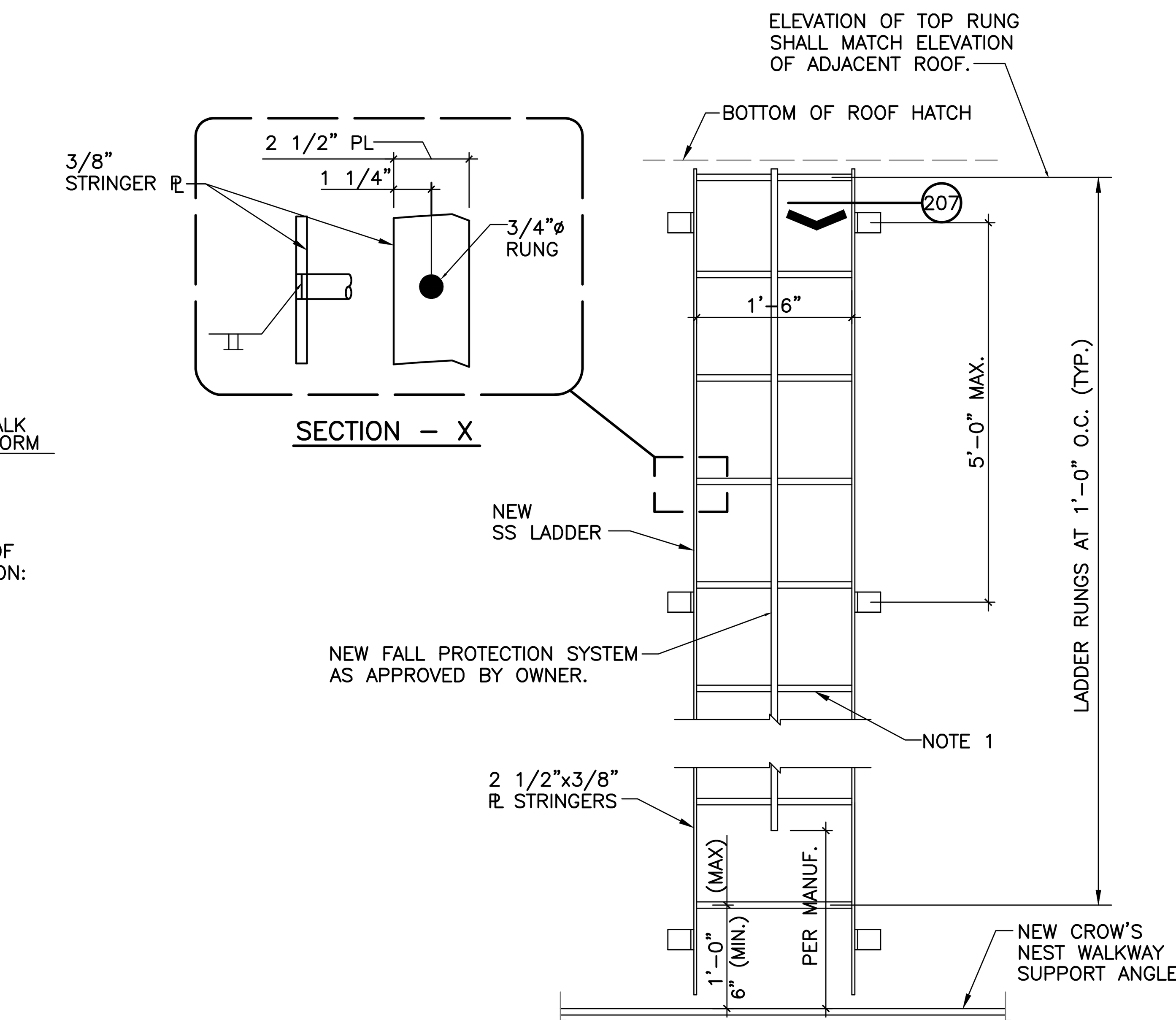


NOTES:
1. LADDER RUNGS ARE TO BE KNURLED, DIMPLED CORRUGATED W/ SKID–RESISTANT MATERIAL OR OTHERWISE TREATED TO MINIMIZE SLIPPING.
2. LADDER TO MEET OSHA REQUIREMENTS.

213 LADDER AT GROUND FLOOR TO SECOND FLOOR
SCALE : 3/4" = 1'-0"

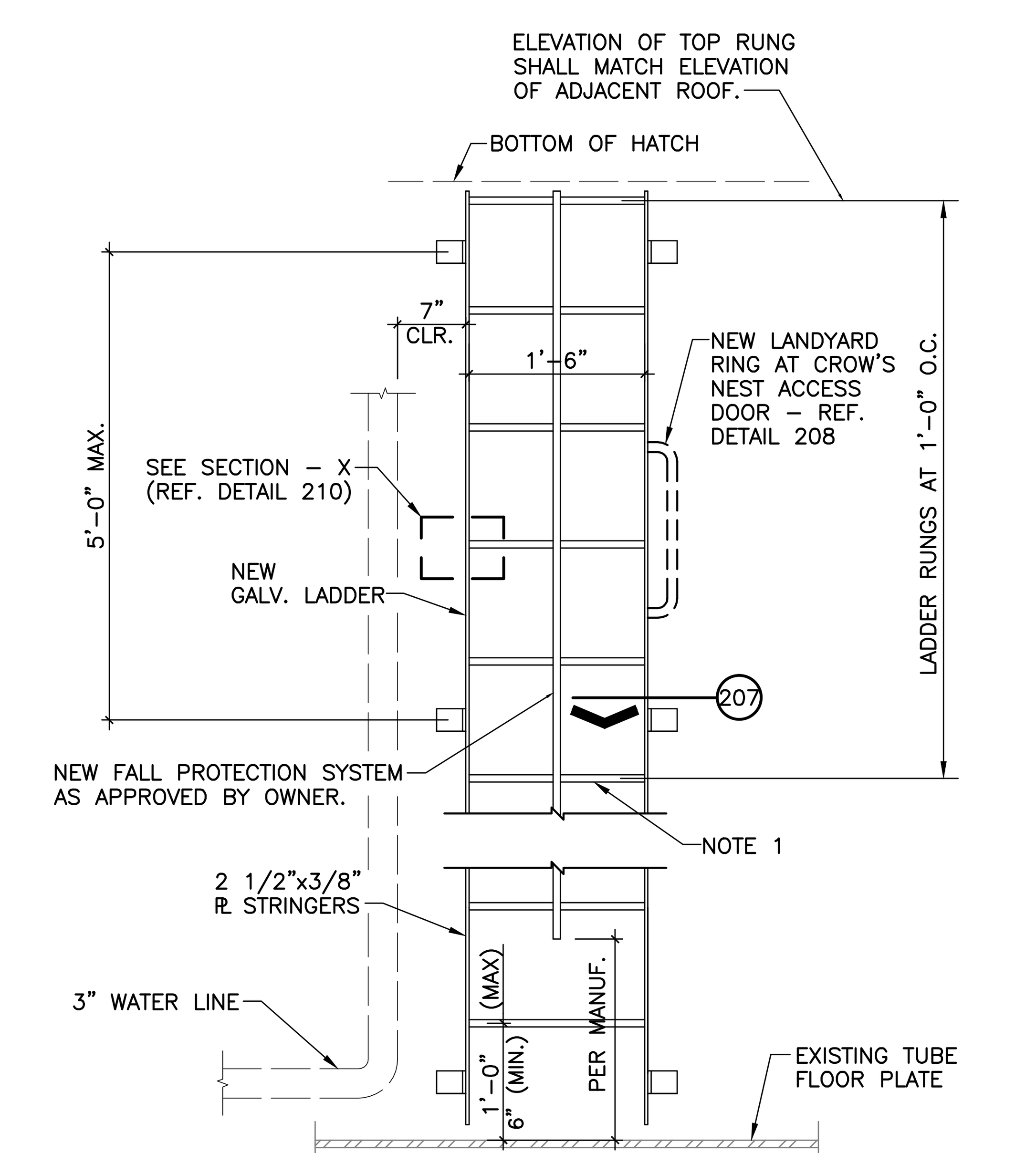


209 2ND. FLOOR TO CATWALK ELEVATION
SCALE : 1/2" = 1'-0"



NOTES:
1. LADDER RUNGS ARE TO BE KNURLED, DIMPLED CORRUGATED W/ SKID–RESISTANT MATERIAL OR OTHERWISE TREATED TO MINIMIZE SLIPPING.
2. LADDER TO MEET OSHA REQUIREMENTS.

210 LADDER ABOVE CROW NEST
SCALE : 3/4" = 1'-0"



NOTES:
1. LADDER RUNGS ARE TO BE KNURLED, DIMPLED CORRUGATED W/ SKID–RESISTANT MATERIAL OR OTHERWISE TREATED TO MINIMIZE SLIPPING.
2. LADDER TO MEET OSHA REQUIREMENTS.
3. PLATE MANWAY NOT SHOWN FOR CLARITY, REF. SECTION 1/S2.1 AND DETAIL 317 FOR PLATE MANWAYS IN DRY ACCESS TUBE.

214 LADDER INSIDE ACCESS TUBE
SCALE : 3/4" = 1'-0"

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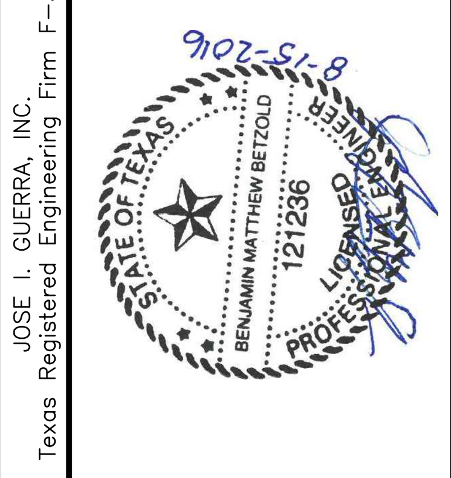

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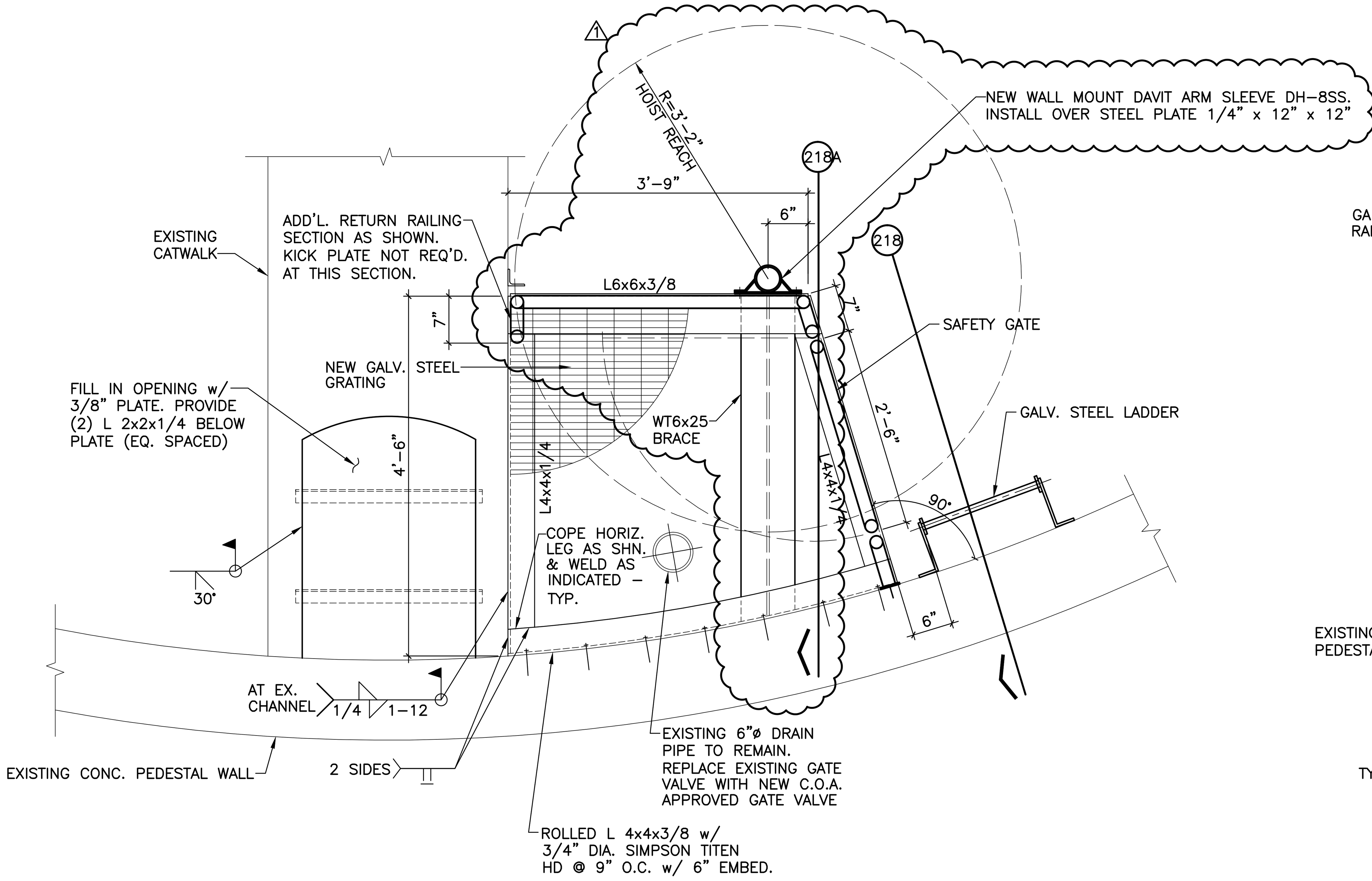
STRUCTURAL
LADDER, RAILING, AND GRATING SHEET 2 OF 4

F&N JOB NO.	AU116177
DATE	08/15/16
DESIGNED	BB
DRAWN	RH
REVISED	RH
CHECKED	BB
FILE NAME	S5.2.dwg

NO.	ISSUE	BY	DATE

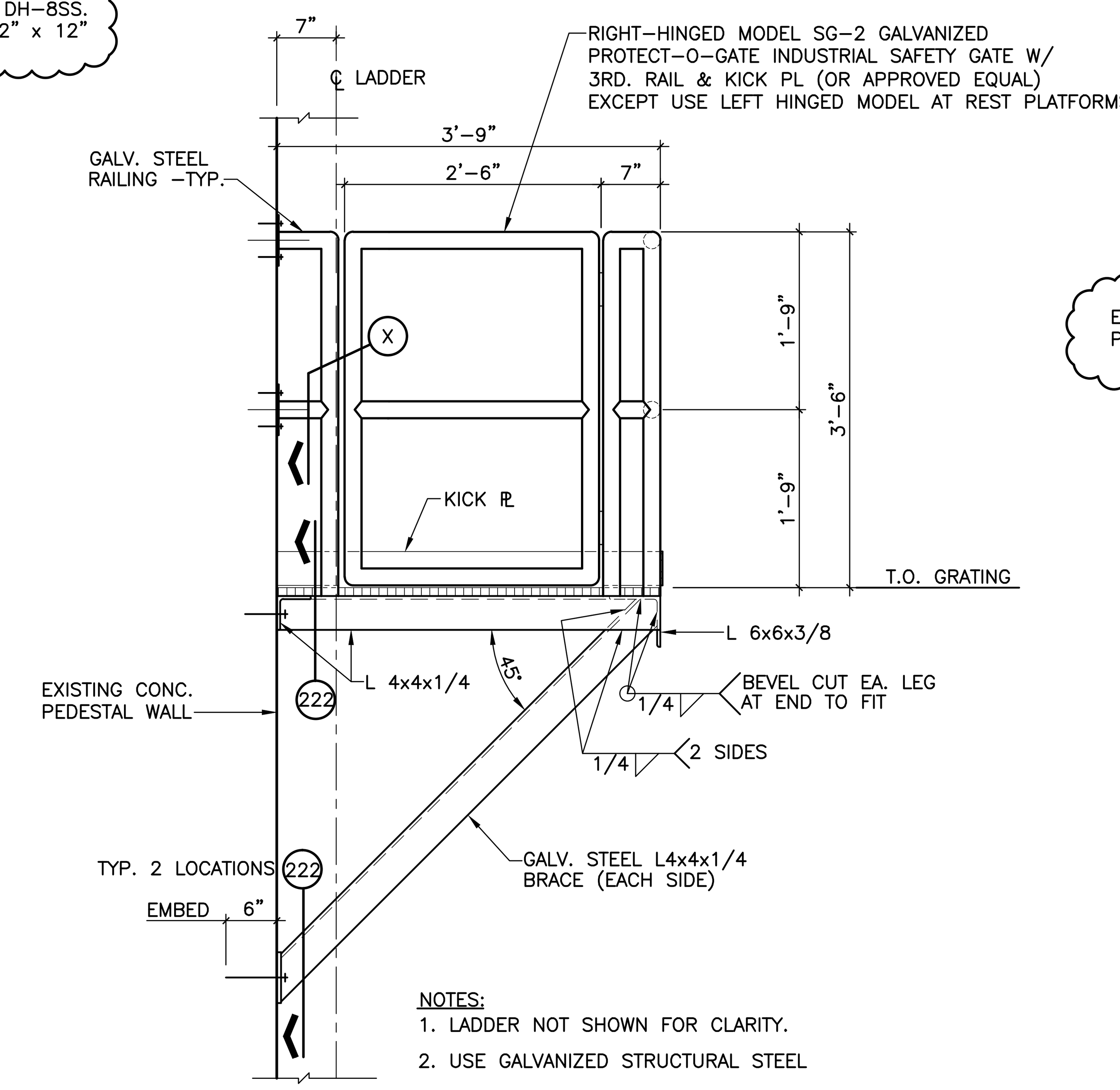
VERIFY SCALE 0 1 Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.

SHEET S5.2
SEQ. –



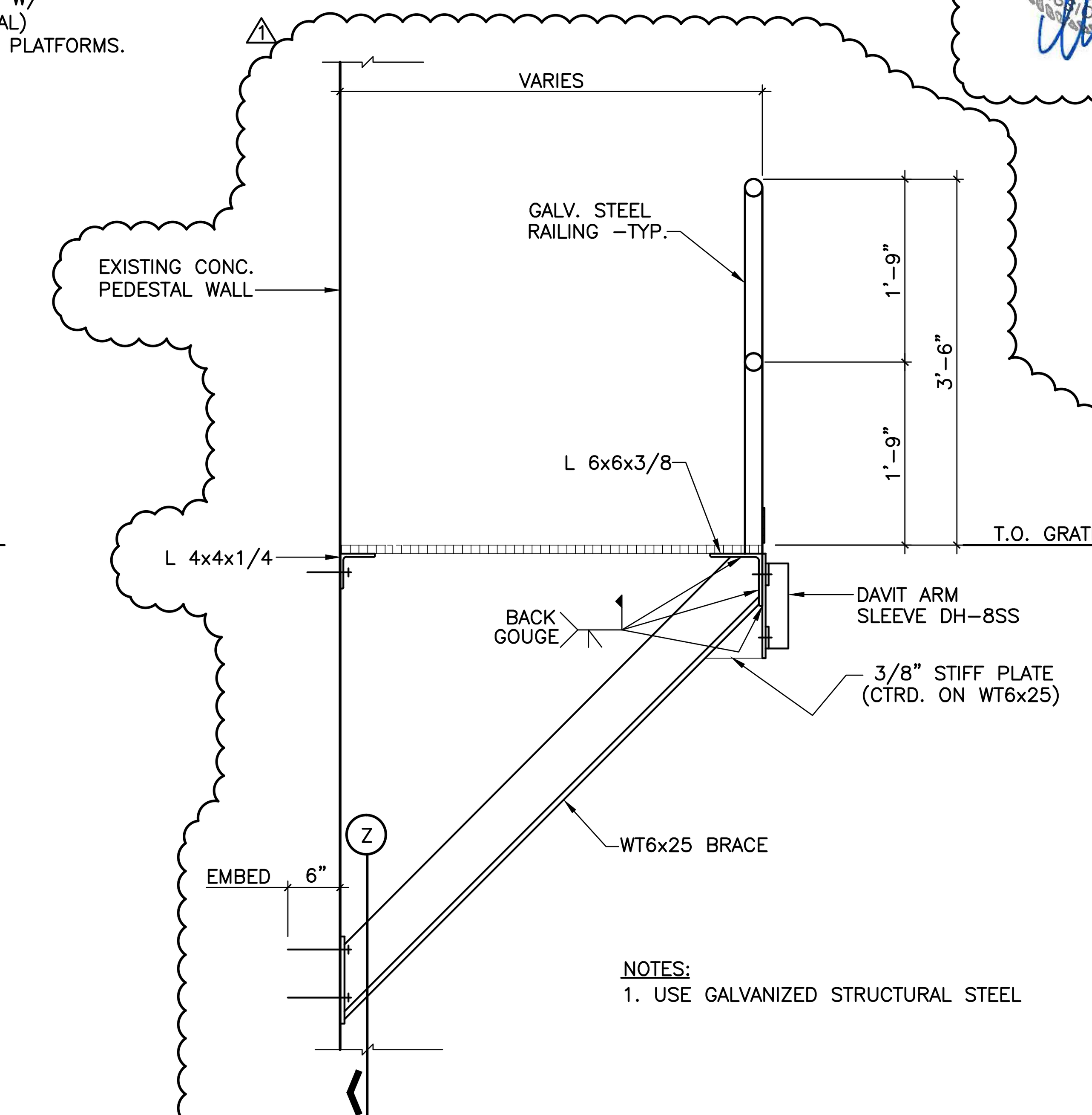
NOTE:
USE GALVANIZED STRUCTURAL STEEL

217 NEW LANDING TO CATWALK PLAN
SCALE: 3/4" = 1'-0"



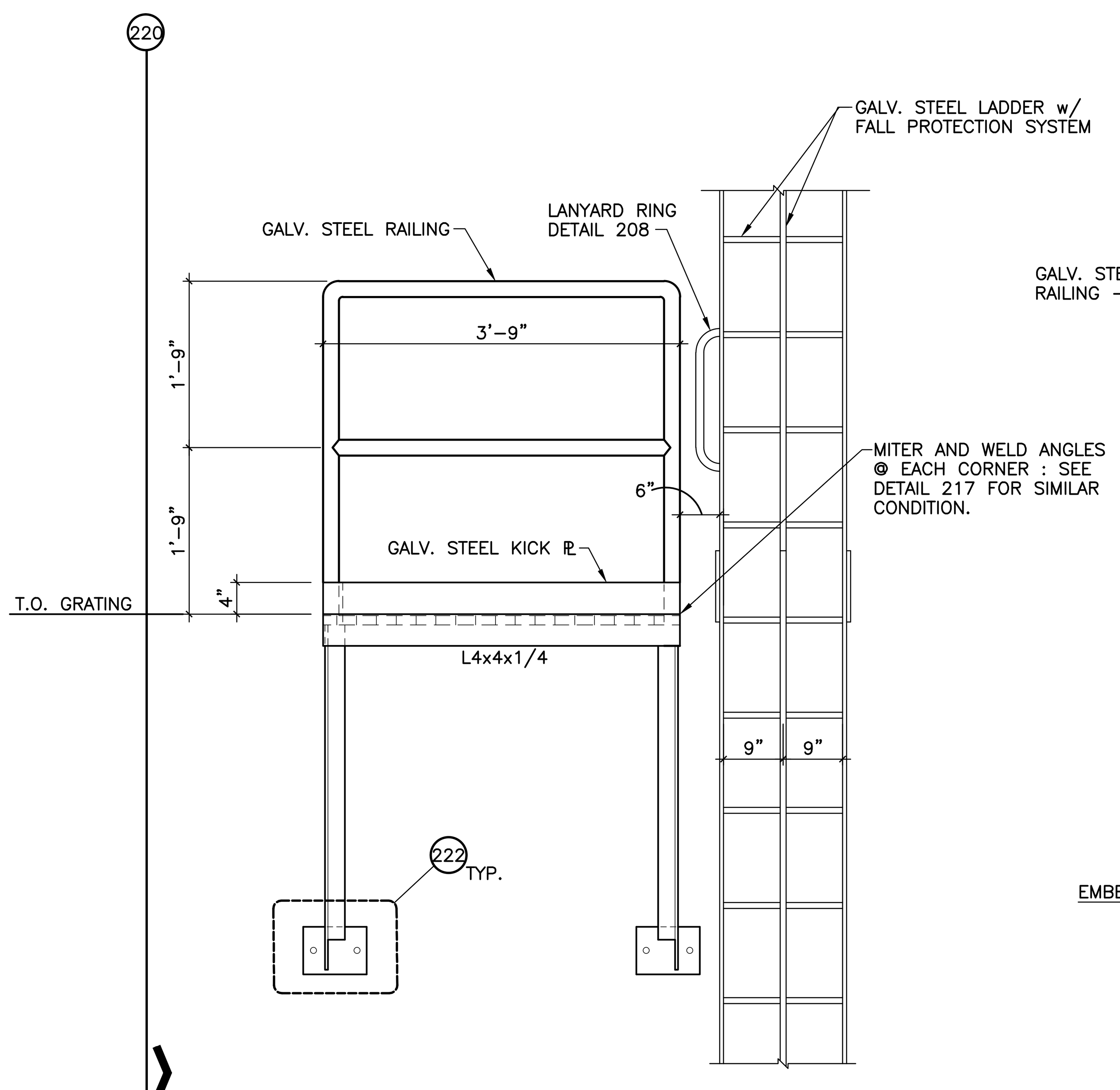
NOTES:
1. LADDER NOT SHOWN FOR CLARITY.
2. USE GALVANIZED STRUCTURAL STEEL

218 NEW LANDING TO CATWALK SECTION (REST PLATFORM SIM.)
SCALE: 3/4" = 1'-0"



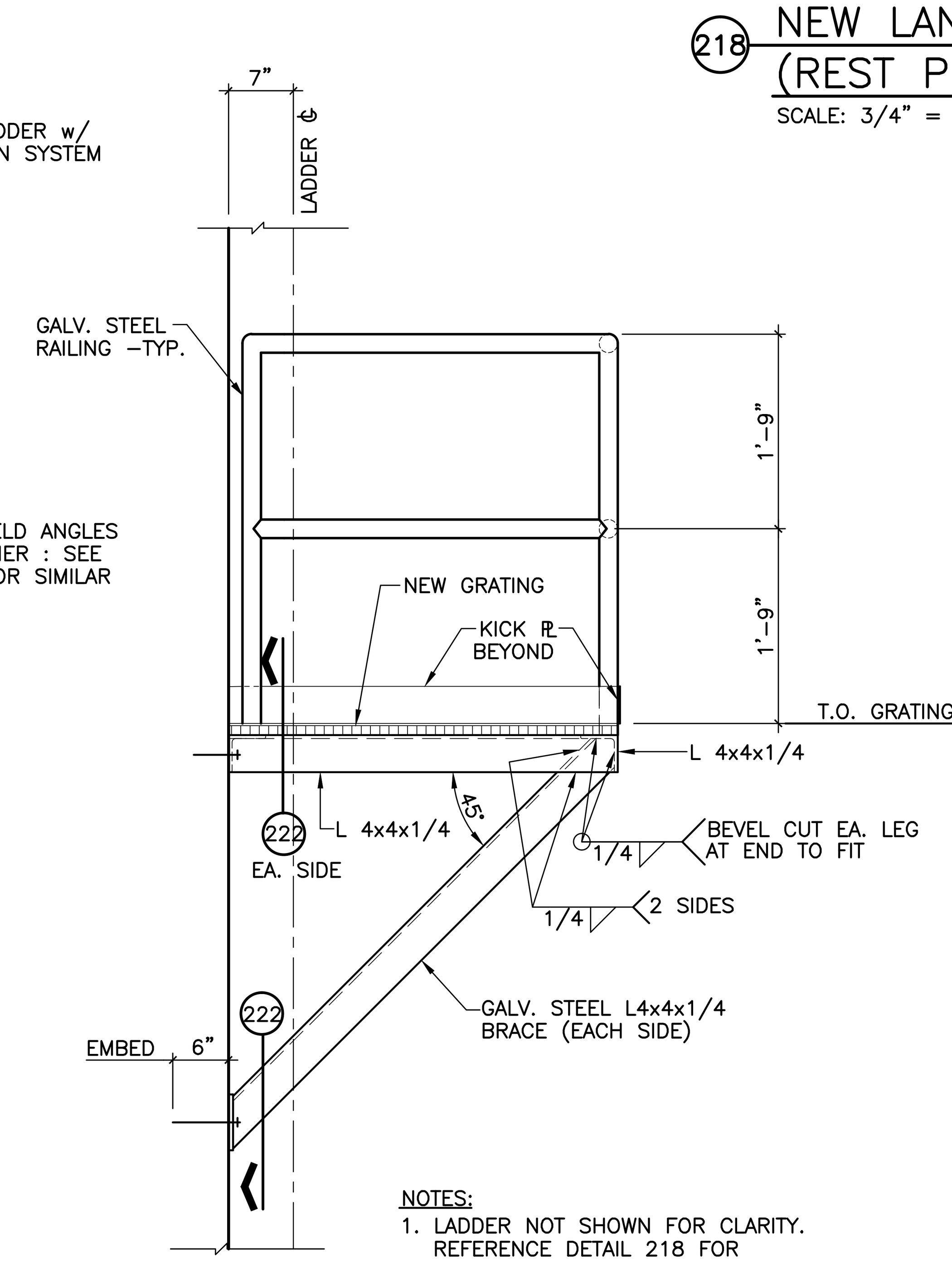
NOTES:
1. USE GALVANIZED STRUCTURAL STEEL

218A NEW LANDING TO CATWALK SECTION (@ DAVIT ARM SLEEVE)
SCALE: 3/4" = 1'-0"



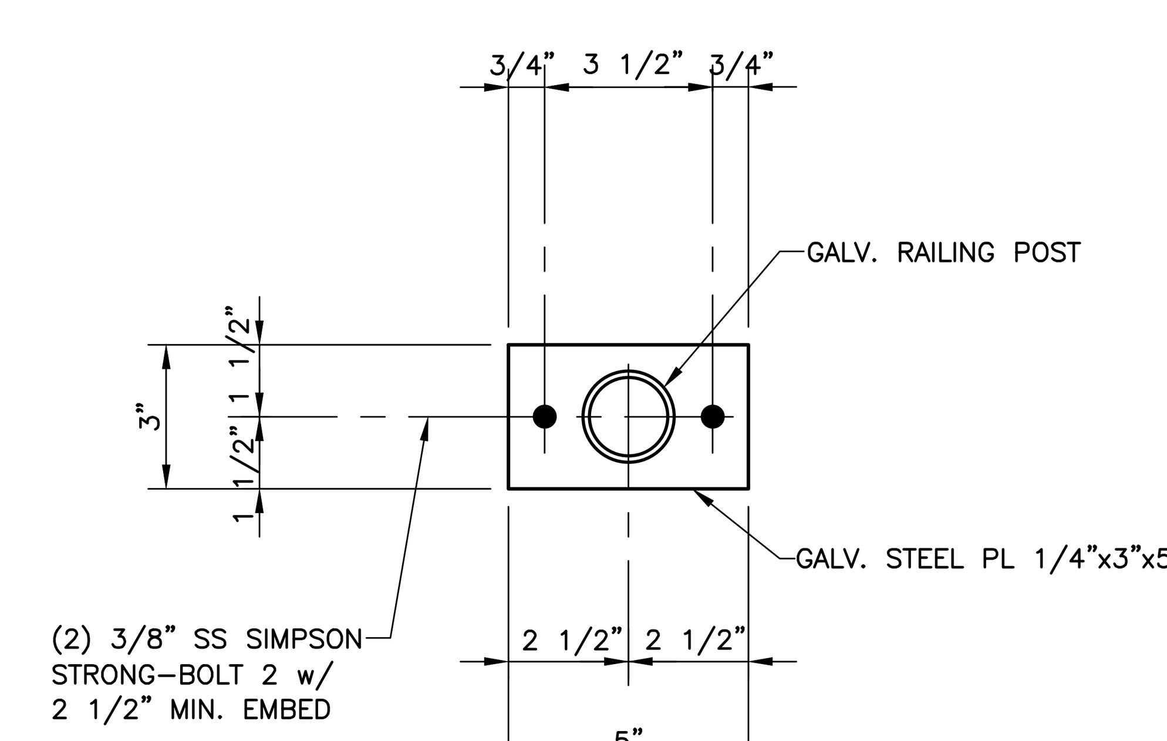
NOTE:
USE GALVANIZED STRUCTURAL STEEL

219 REST PLATFORM ELEVATION
SCALE: 3/4" = 1'-0"

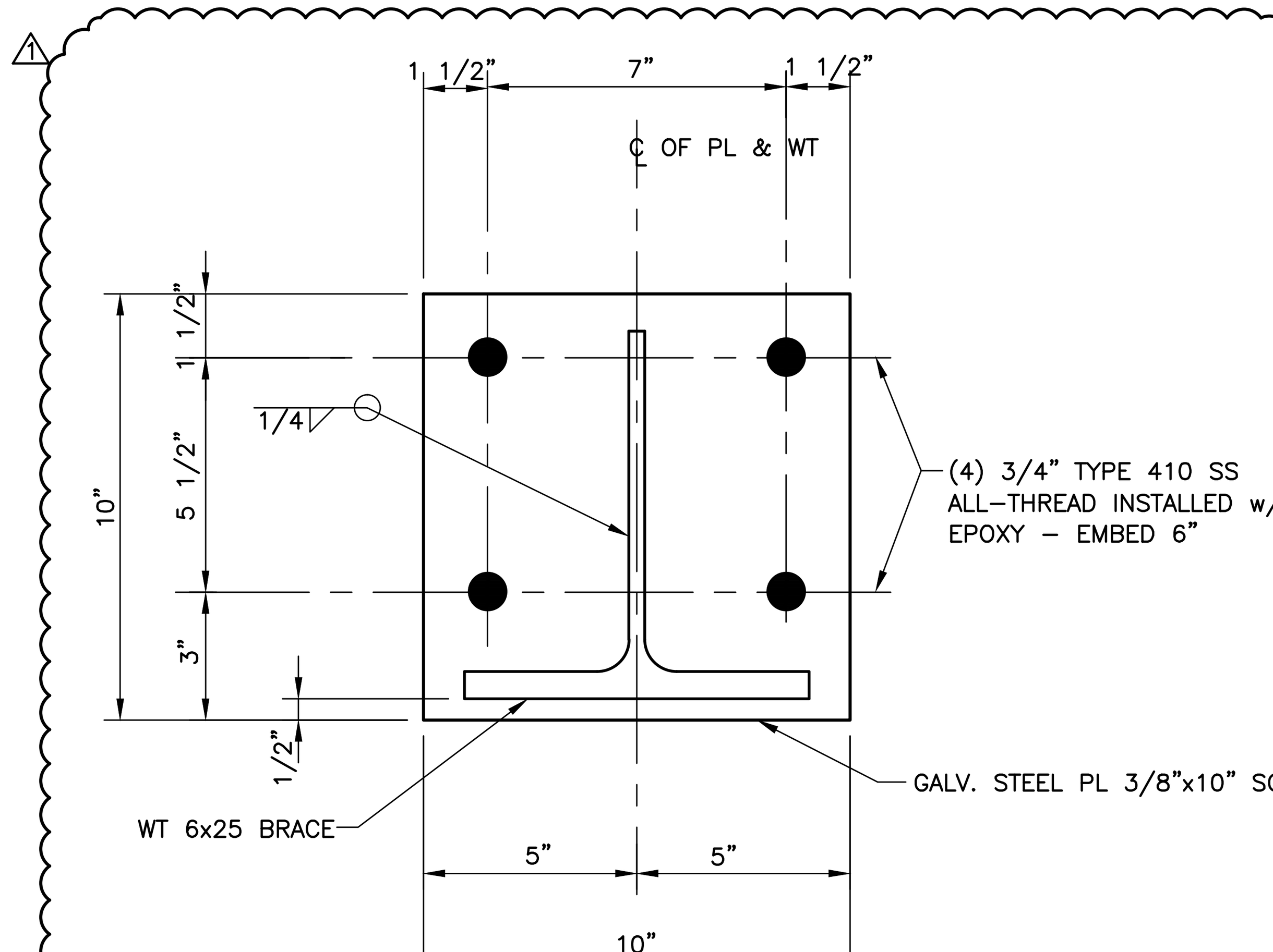


NOTES:
1. LADDER NOT SHOWN FOR CLARITY. REFERENCE DETAIL 218 FOR OPPOSITE SIDE (SAFETY GATE)
2. USE GALVANIZED STRUCTURAL STEEL

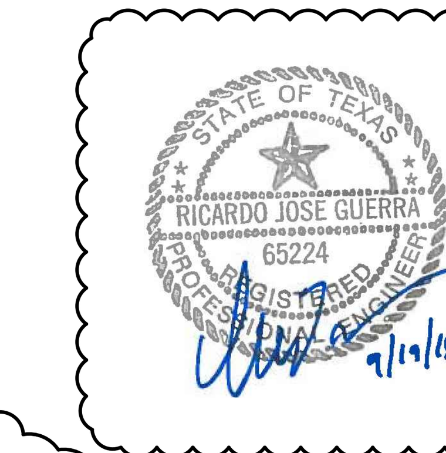
220 REST PLATFORM SECTION
SCALE: 3/4" = 1'-0"



X RAILING TO CONC. WALL SECTION
SCALE: 3" = 1'-0"



Z WT BRACE TO CONC. WALL SECTION
SCALE: 3" = 1'-0"



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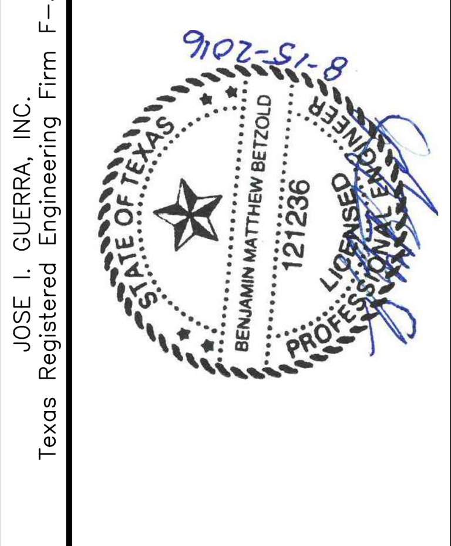

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STRUCTURAL
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SHEET 3 OF 4

NO.	ISSUE	BY	DATE
1	RELOCATED DAVIT SLEEVE & ADDED BRACE	RH	9-19-16

F&N JOB NO. AU116177
DATE 08/15/16
DESIGNED BB
DRAWN RH
REVISED RH
CHECKED BB
FILE NAME S5.3.dwg

VERIFY SCALE 0 1
Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.

SHEET S5.3
SEQ. –

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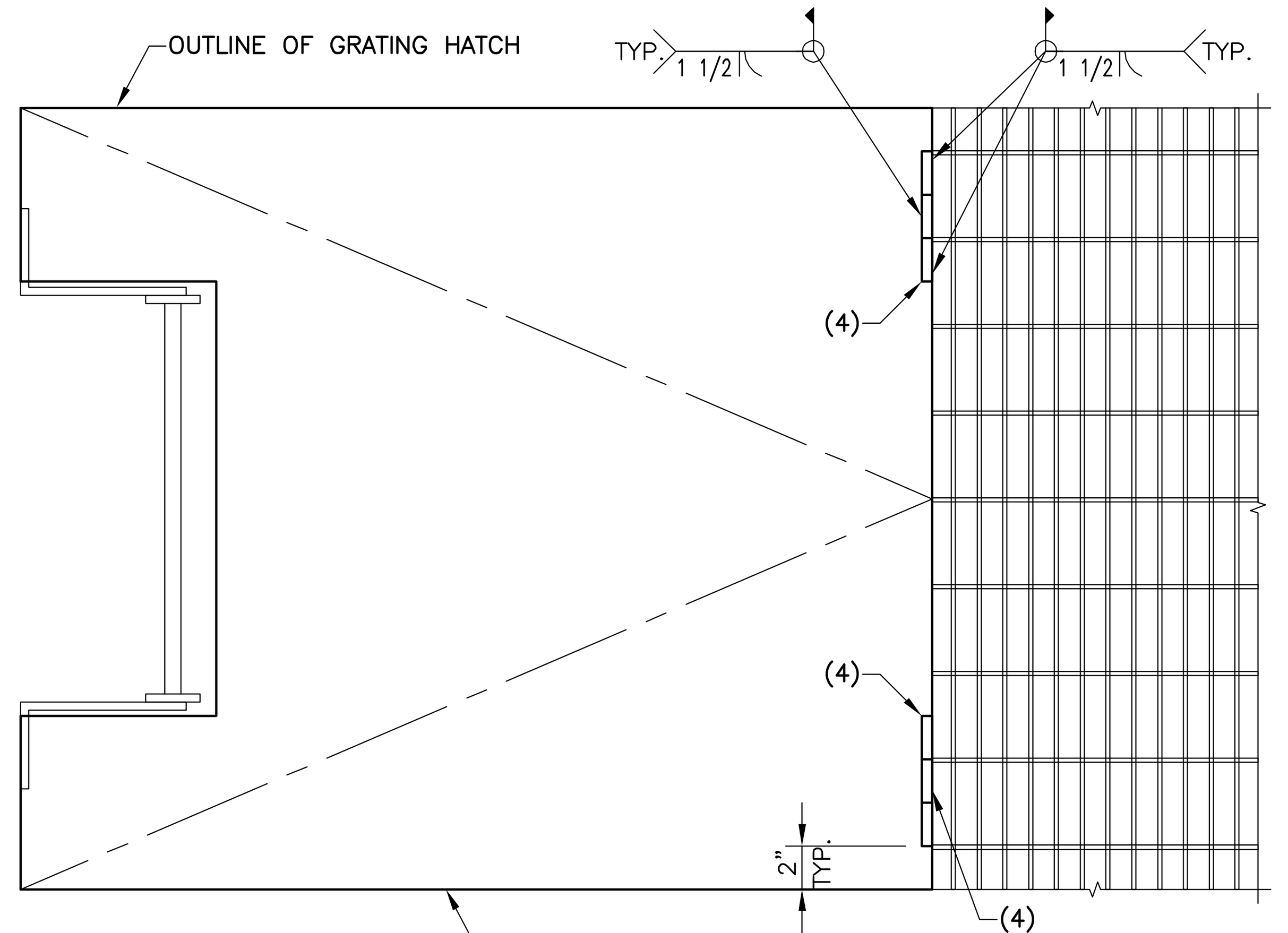
05/11/2012 1:16:33 P.M. LTS: 1 PSLTS: 1

Date: Sep 19, 2016 - 7:39pm User: rhinojosaFile: F:\16013_COA Four Points EST Repairs\DRAWINGS\CAD\S5.3.dwg

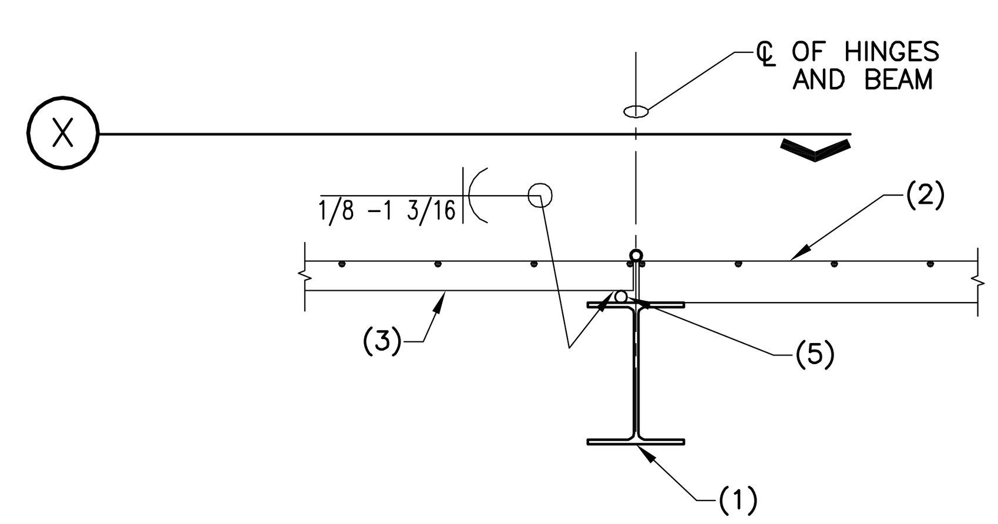


X HATCH PLAN
SCALE: 1 1/2" = 1'-0"

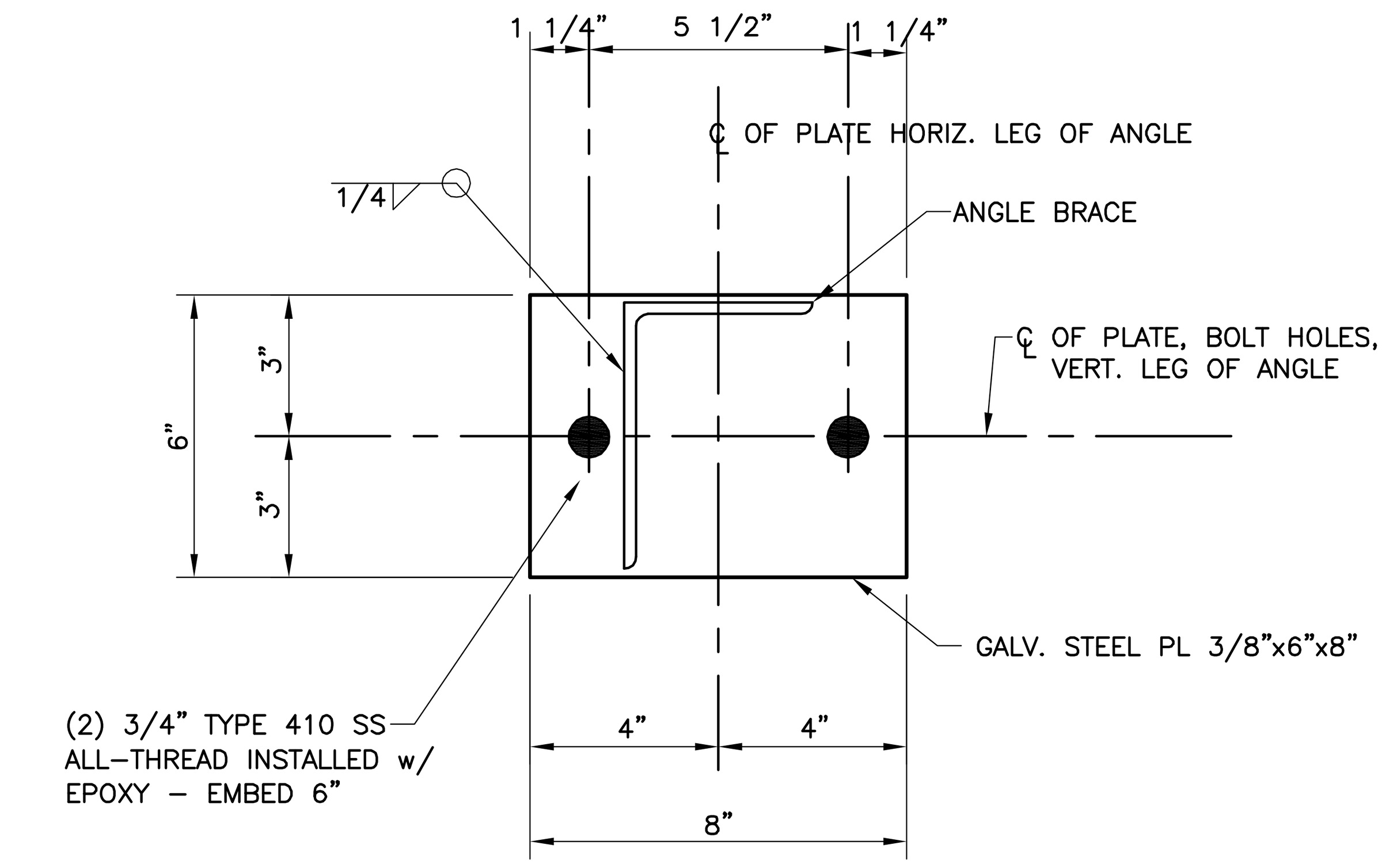
KEY NOTES:

1. NEW STEEL BEAM OR SUPPORT FRAMING.
2. NEW SECTION OF BAR GRATING
3. NEW BAR GRATING HATCH W/ 1 1/4"x1/8" BARS @ 1-3/16"o.c. SPACING – McNICHOLS TYPE GW-2 OR APPROVED EQUAL. FABRICATE AND INSTALL w/ LOCKING HASP WHERE NOTED. SEE PLAN & REF. DETAIL 212 FOR LOCKING HASP.
4. (2) 6" LONG, 3-PIECE GALV. OR S.S., WELDABLE HINGES W/ 1/2"ø PINS. WELD TO GRATING AND HATCH AS SHOWN. COORDINATE HINGE TYPE W/ OWNER. (SS HINGES INSIDE TANK)
5. ROUND STEEL SPACER ROD EA. SHORT SIDE OF HATCH–SEE NOTE.

NOTE:
1. HATCH AND GRATING SHALL BE INSTALLED TO RESULT IN THE SAME FINISHED FLOOR ELEVATION. CONTRACTOR SHALL VERIFY THAT THE ADJACENT GRATING WILL BE AT THE SAME ELEVATION AS THE HATCH GRATING.
2. SEE PLAN AND DETAIL FOR LOCKING HASP – AS OCCURS.



221 NEW GRATING HATCH
SCALE: 1 1/2" = 1'-0"



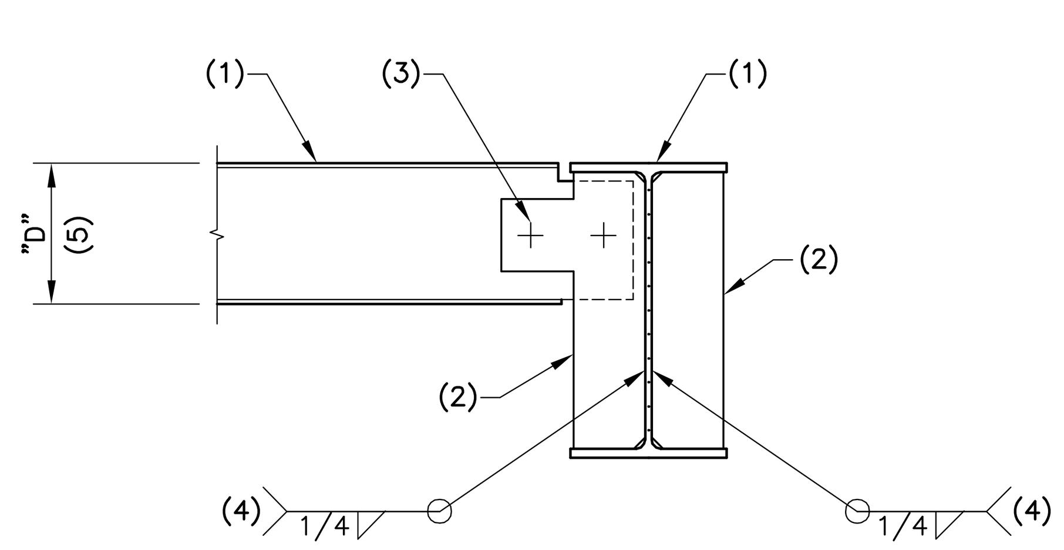
222 ANGLE BRACE AT CONC. WALL SECTION
SCALE: 3" = 1'-0"

NOMINAL BEAM DEPTH "D"	NUMBER OF 3/4"ø H.C.A.
6"	2
12"	4

226 TYPICAL EMBED SCHEDULE
SCALE: N.T.S.

KEY NOTES:

1. NEW GALV. STEEL BEAM.
2. NEW 3/8" STEEL PLATE
3. FOR SIZE TYPE AND NUMBER OF BOLTS – SEE BOLT SCHEDULE
4. WELD 3 SIDES – TYPICAL
5. "D" = LESSER OF BEAM DEPTHS AS OCCURS.



223 TYPICAL WIDE FLANGE BEAM TO BEAM CONNECTION
SCALE: 1 1/2" = 1'-0"

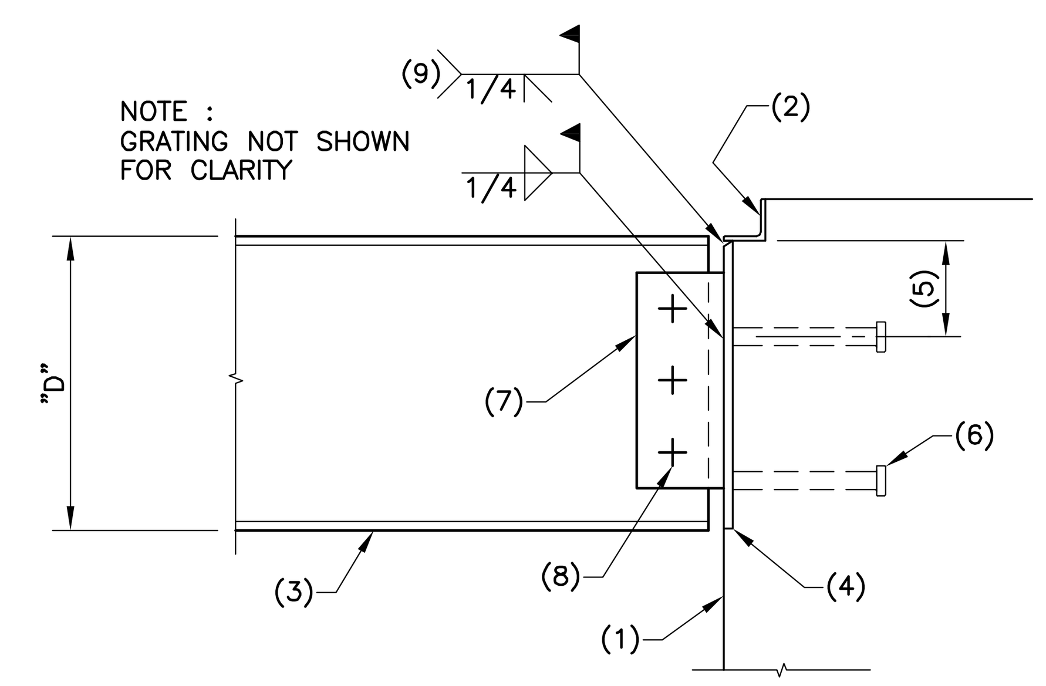
NOTE :
ALL BOLTS SHALL BE INSTALLED IN SHORT SLOTTED HOLES IN EITHER THE BEAM WEB OR SHEAR PLATE PER LATEST AISC SPECS.

NOMINAL BEAM DEPTH "D"	NUMBER OF 3/4"ø ASTM A325N BOLTS
UP TO 6"	2 or
8" TO 10"	2
12" TO 14"	3

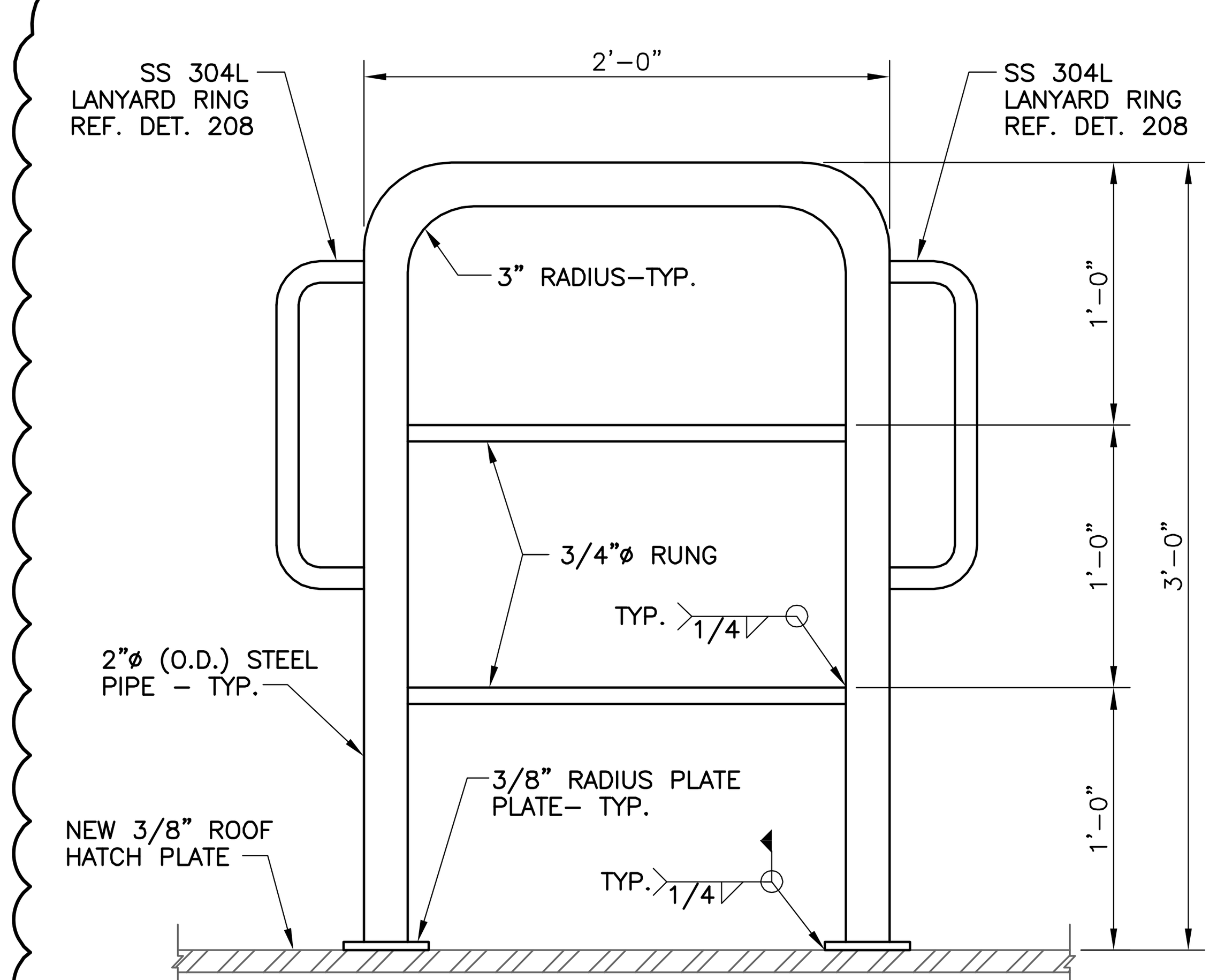
224 TYPICAL BOLT SCHEDULE
SCALE: N.T.S.

KEY NOTES:

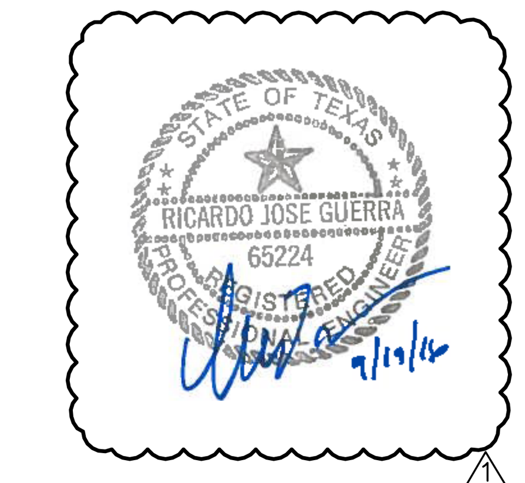
1. NEW CONCRETE WALL
2. NEW GRATING SEAT
3. NEW GALV. STEEL BEAM.
4. 10" WIDE x 3/8" STEEL EMBED PLATE. MATCH BEAM DEPTH "D".
5. 4" EDGE DISTANCE
6. 6" LONG H.C.A. @ 6" O.C. – CENTERED HORIZONTALLY AND WITH EDGE DISTANCE AS INDICATED. SEE TYPICAL EMBED SCHEDULE THIS SHEET FOR NUMBER OF ANCHORS AT EA. PLATE.
7. NEW 3/8" STEEL PLATE
8. FOR SIZE TYPE AND NUMBER OF BOLTS : REFER TO TYPICAL BOLT SCHEDULE THIS SHEET.
9. NEEDED ONLY WHERE NUMBER OF H.C.A. ARE 2 OR LESS.

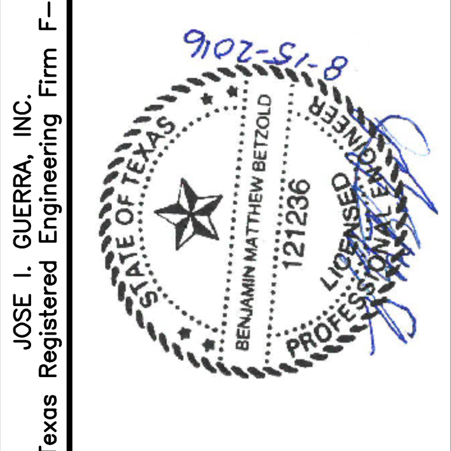


225 TYPICAL WIDE FLANGE TO NEW CONC. WALL w/ GRATING SEAT
SCALE: 1 1/2" = 1'-0"



227 ROOFTOP GRAB RAIL
SCALE: 1 1/2" = 1'-0"





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STRUCTURAL
LADDER, RAILING, AND GRATING SHEET 4 OF 4

NO.	ISSUE	BY	DATE
1	ADDED GRAB RAIL 227	RH	9-19-16

F&N JOB NO. AU116177
DATE 08/15/16
DESIGNED BB
DRAWN RH
REVISED RH
CHECKED BB
FILE NAME S5.4.dwg

VERIFY SCALE
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Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.

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SEQ. –

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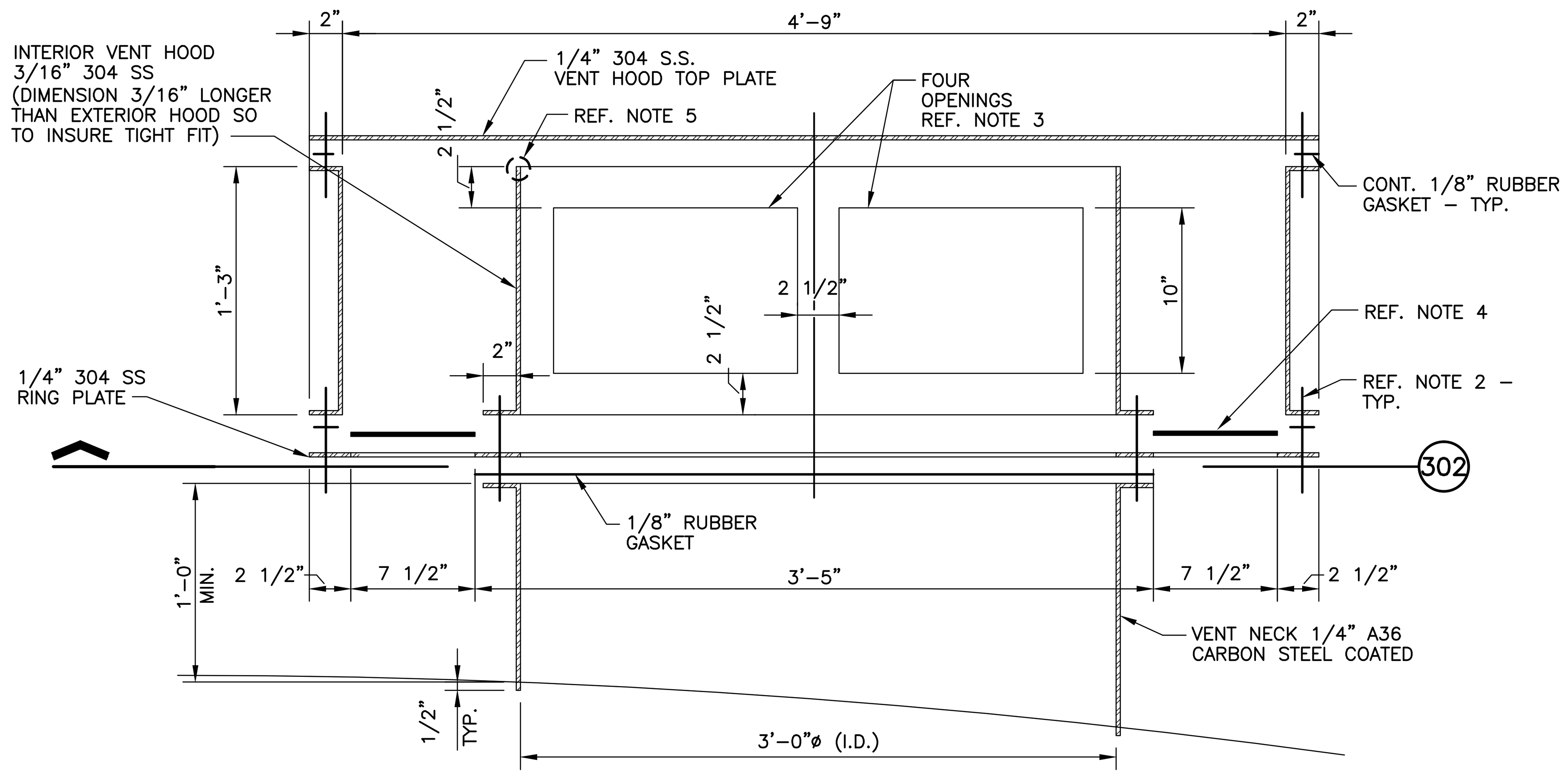
05/11/2012 1:16:33 P.M. LTS: 1 PSLTS: 1

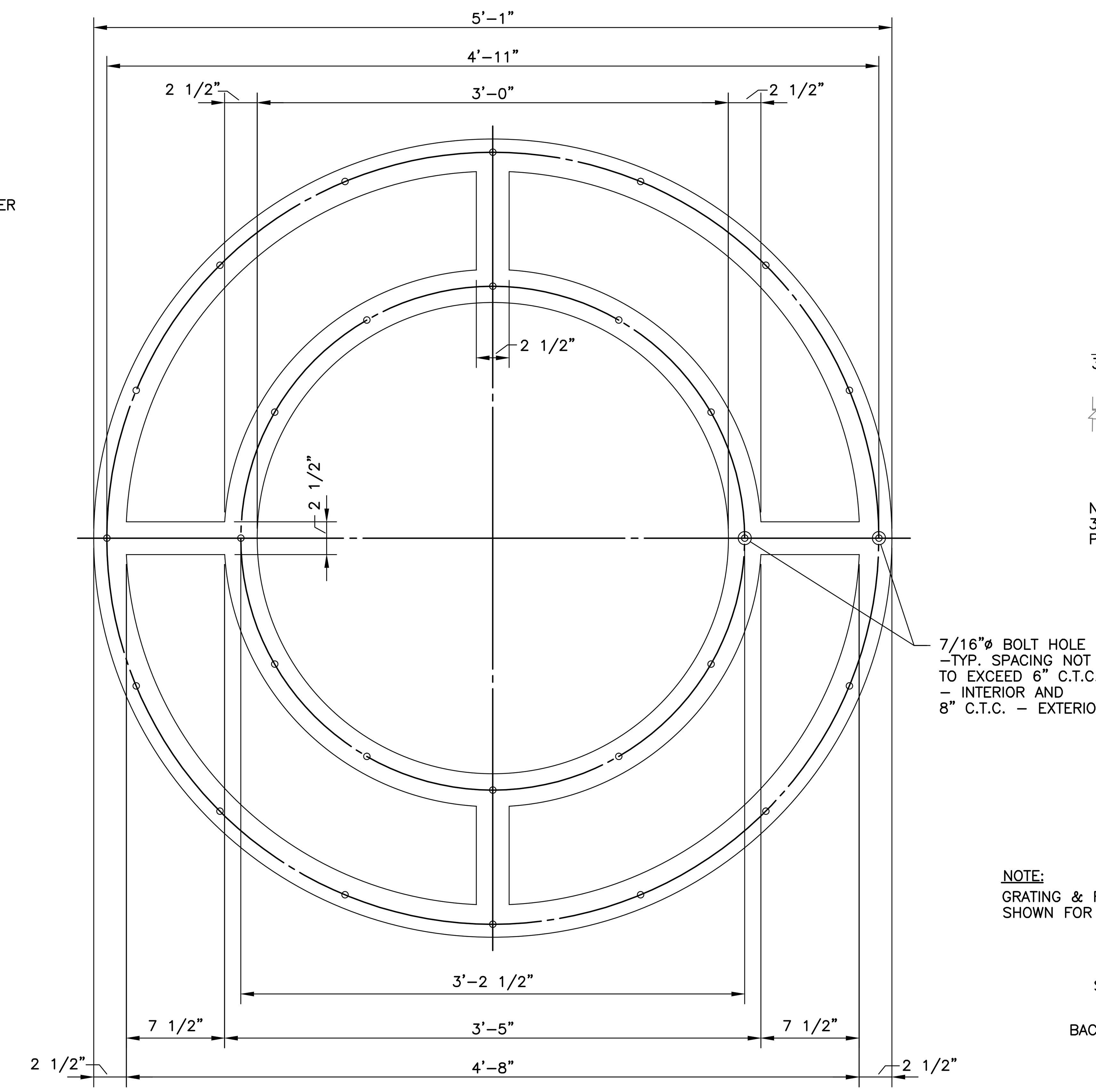
Date: Sep 20, 2016 – 1:15pm User: fmuniz File: F:\16013_COA Four Points EST Repairs\DRAWINGS\CAD\S5.4.dwg



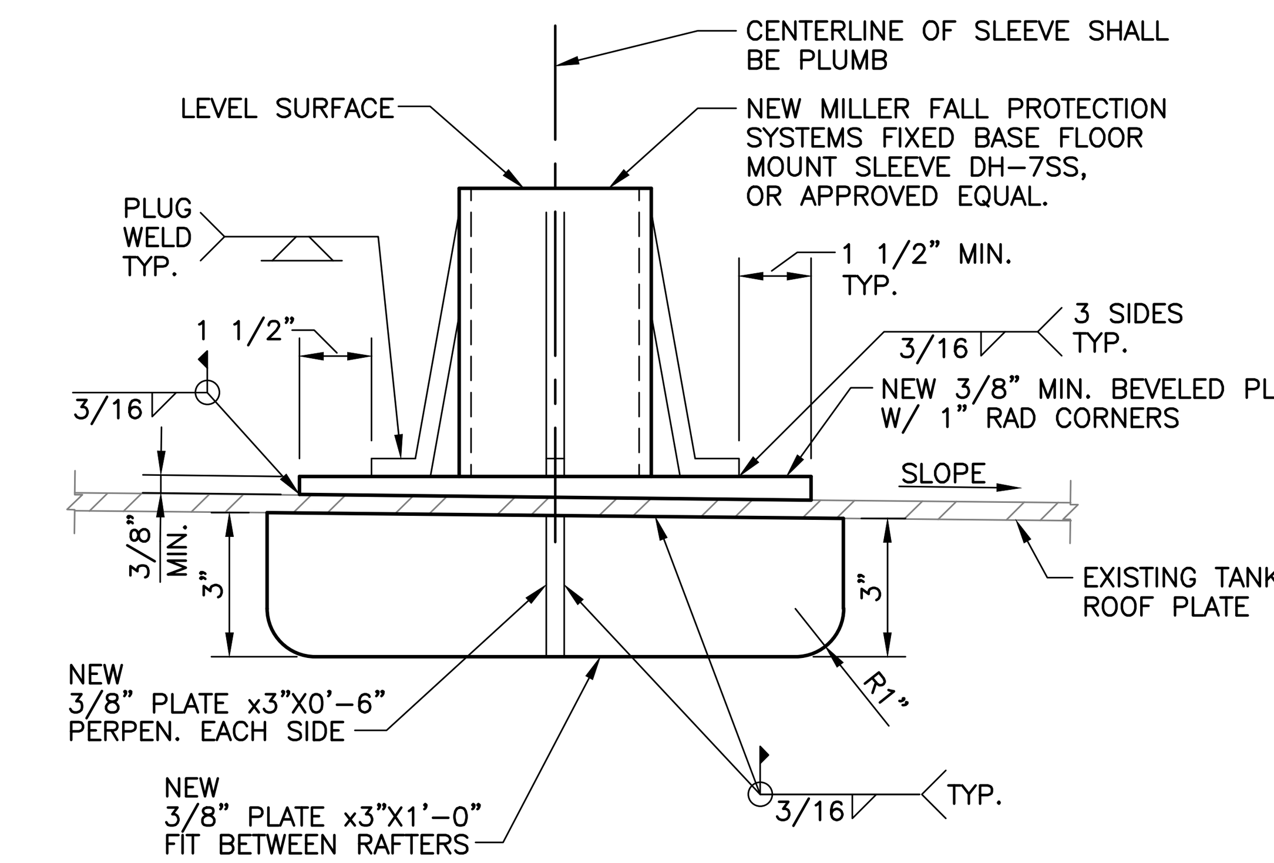
NOTES:

1. VENT NECK TO EXTEND 1/2" BEYOND TANK ROOF OR DOLLAR PLATE ON THE INTERIOR AND 12" MIN. ON THE EXTERIOR.
2. PROVIDE 3/8"ø STAINLESS STEEL BOLTS, FLAT WASHERS, DIELECTRIC WASHERS AND LOCK NUTS.
3. THESE FOUR OPENINGS ARE TO BE WRAPPED IN 16 MESH, 304 SS, 0.018" SCREEN, TO EXTEND 1 1/2" ABOVE AND BELOW THE OPENINGS. THE SCREEN SHOULD OVERLAP BY 3" AT ONE OF THE 4 VERTICAL MEMBERS. SCREEN TO BE STRAPPED DOWN WITH 1/2"x0.030" 304 SS BAND OR HOSE CLAMP AT TOP AND BOTTOM.
4. 10 GA., 2 MESH, LOCK CRIMP, 304 SS WIRE CLOTH. CUT INTO A RING THAT WILL OVERLAP OPENING IN RING PLATE 1/2" ALL AROUND AND IS WELDED ALL AROUND TO RING PLATE.
5. INSTALL U-CHANNEL EXTRUDED RUBBER GASKET BETWEEN INTERIOR AND EXTERIOR HOODS.
6. FIELD VERIFY ALL EXISTING DIMENSIONS.

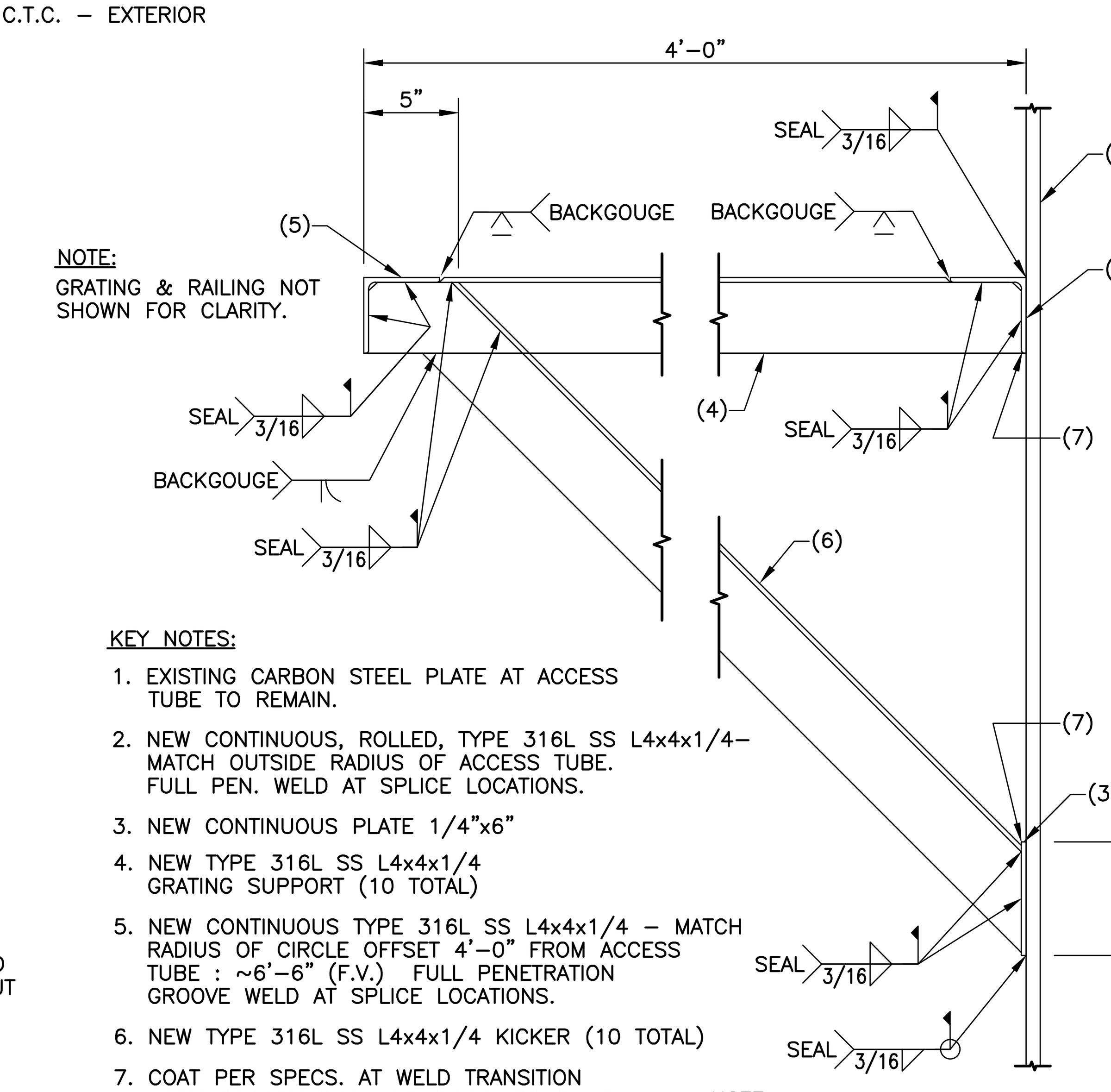
(301) VENT SECTION
SCALE: 1 1/2" = 1'-0"



(302) RING PLATE PLAN FROM BOTTOM
SCALE: 1 1/2" = 1'-0"



(303) HOIST MOUNT
SCALE: 1 1/2" = 1'-0"

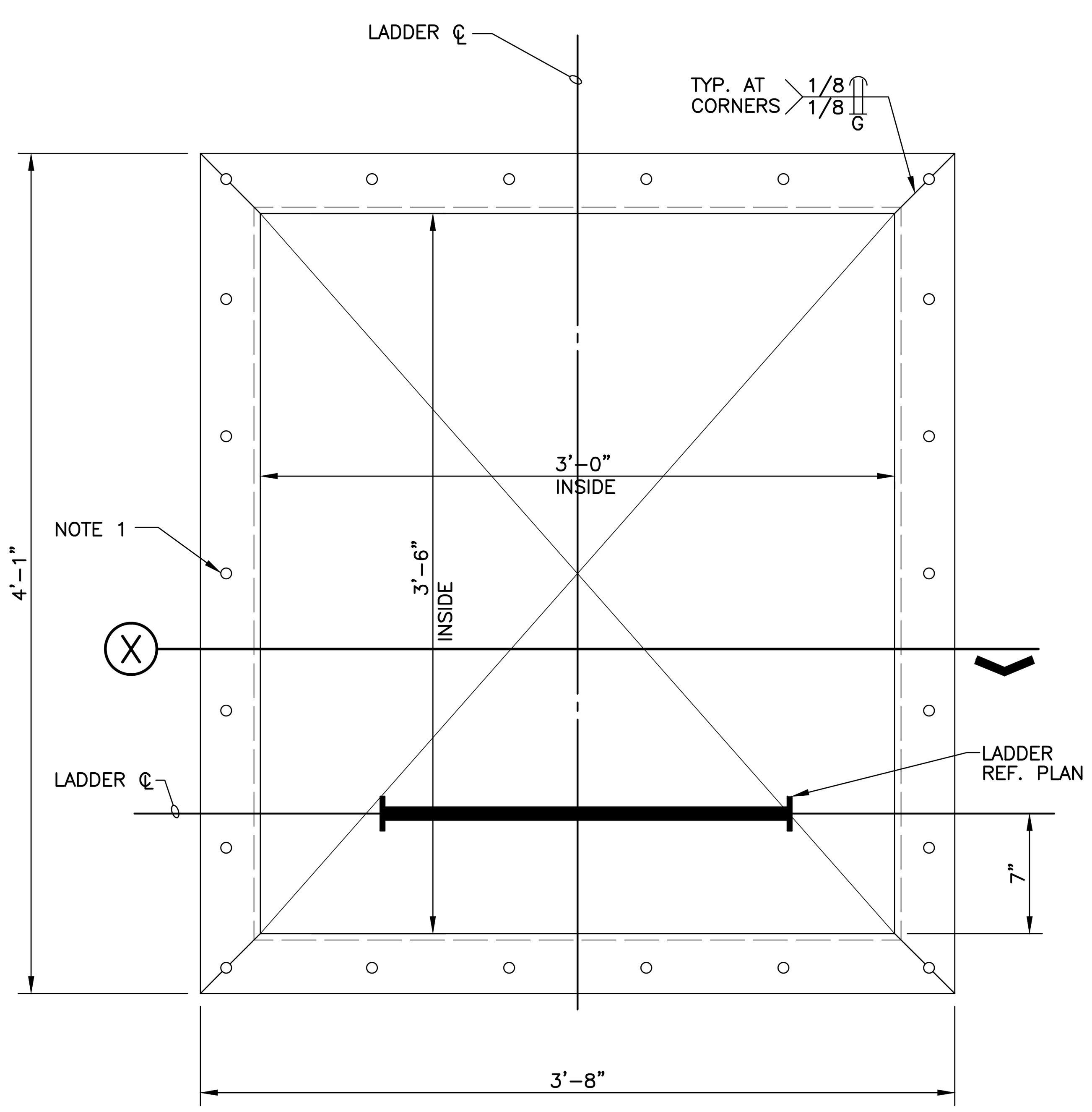


KEY NOTES:

1. EXISTING CARBON STEEL PLATE AT ACCESS TUBE TO REMAIN.
2. NEW CONTINUOUS, ROLLED, TYPE 316L SS L4x4x1/4– MATCH OUTSIDE RADIUS OF ACCESS TUBE. FULL PEN. WELD AT SPLICE LOCATIONS.
3. NEW CONTINUOUS PLATE 1/4"x6"
4. NEW TYPE 316L SS L4x4x1/4 GRATING SUPPORT (10 TOTAL)
5. NEW CONTINUOUS TYPE 316L SS L4x4x1/4 – MATCH RADIUS OF CIRCLE OFFSET 4'-0" FROM ACCESS TUBE : ~6'-6" (F.V.) FULL PENETRATION GROOVE WELD AT SPLICE LOCATIONS.
6. NEW TYPE 316L SS L4x4x1/4 KICKER (10 TOTAL)
7. COAT PER SPECS. AT WELD TRANSITION FROM CARBON STEEL TO STAINLESS STEEL.

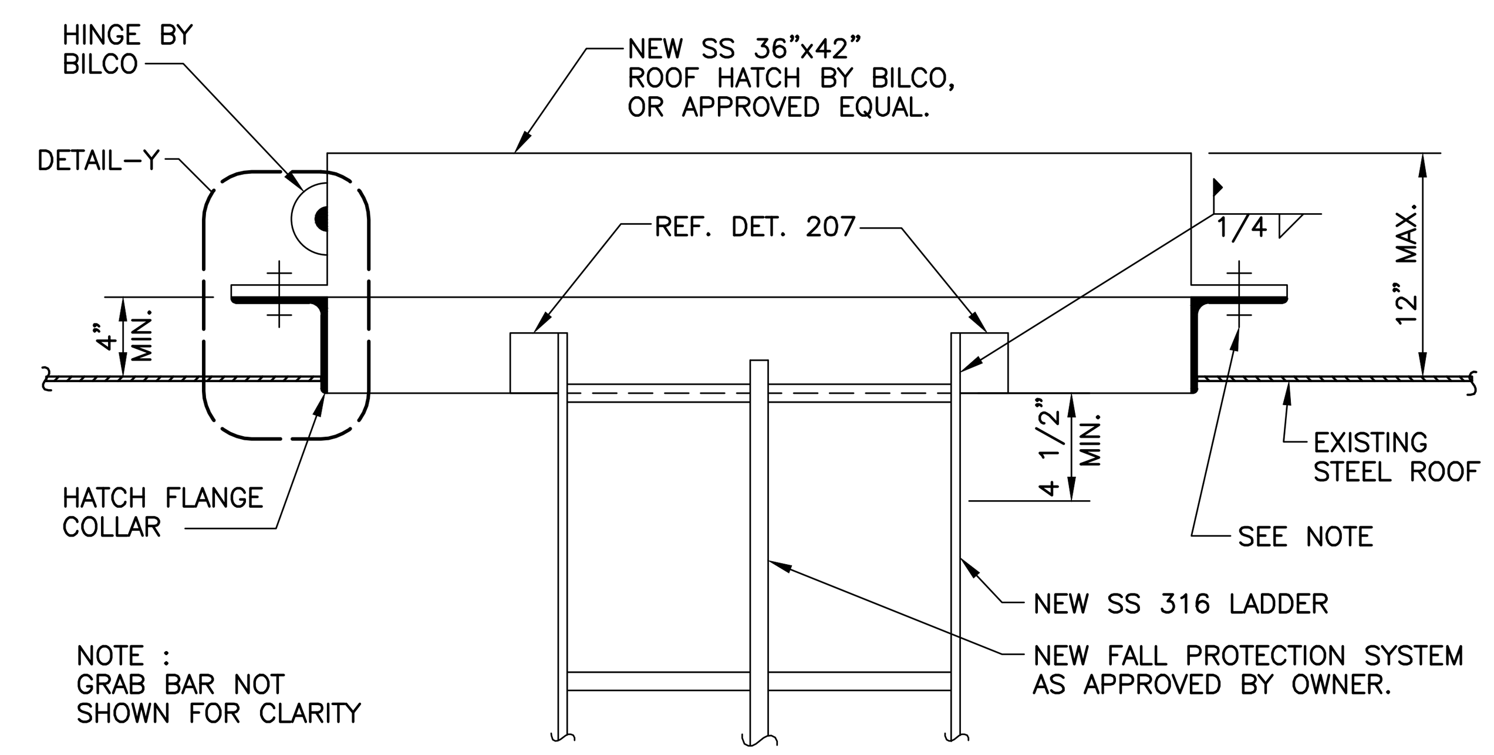
NOTE:
USE TYPE 316L

(307) CROW'S NEST FRAMING DETAIL
SCALE: 1 1/2" = 1'-0"

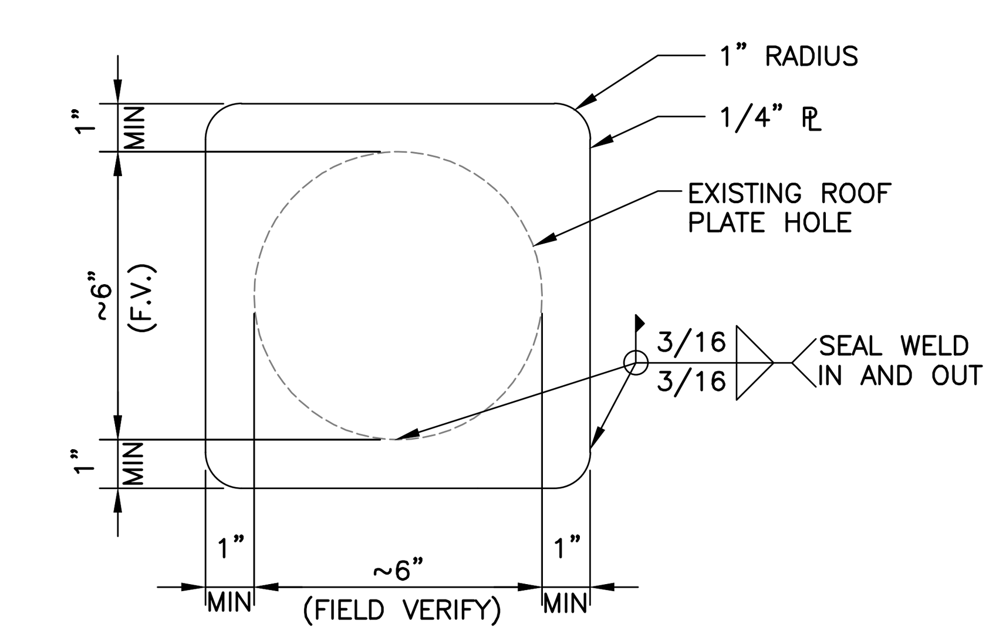


NOTE:
1. BOLT SPACING IS NOT TO EXCEED 8" O.C.
2. NEW HATCH RAIL SYSTEM NOT SHOWN FOR CLARITY.

(304) NEW ROOF HATCH PLAN
SCALE: 1 1/2" = 1'-0"



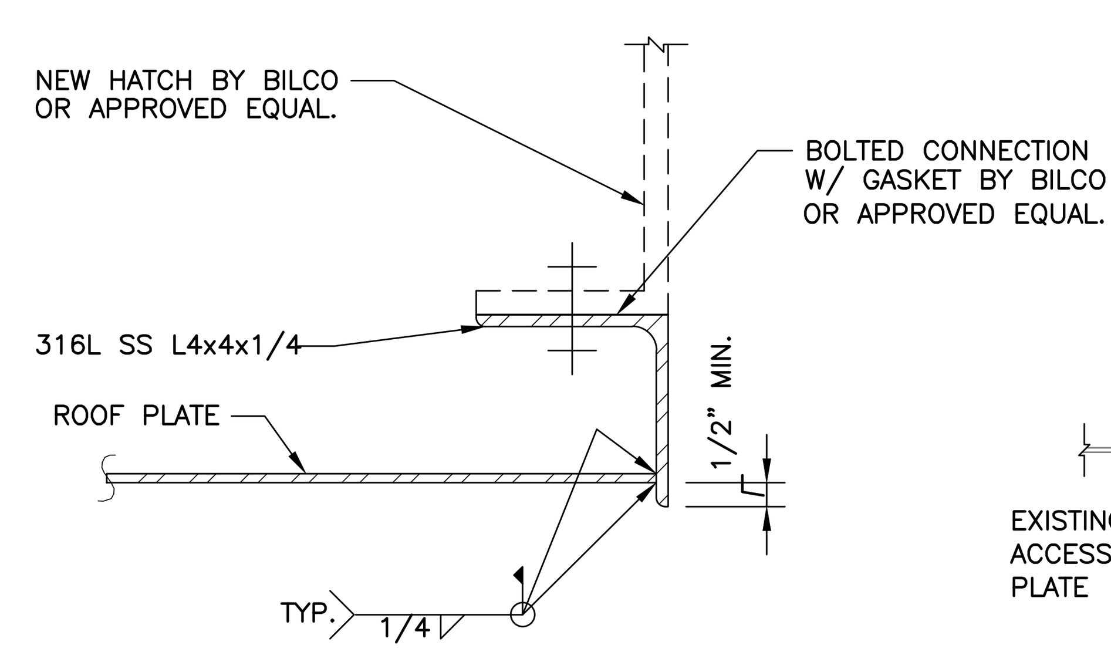
(X) SECTION: NEW HATCH
SCALE: 1 1/2" = 1'-0"



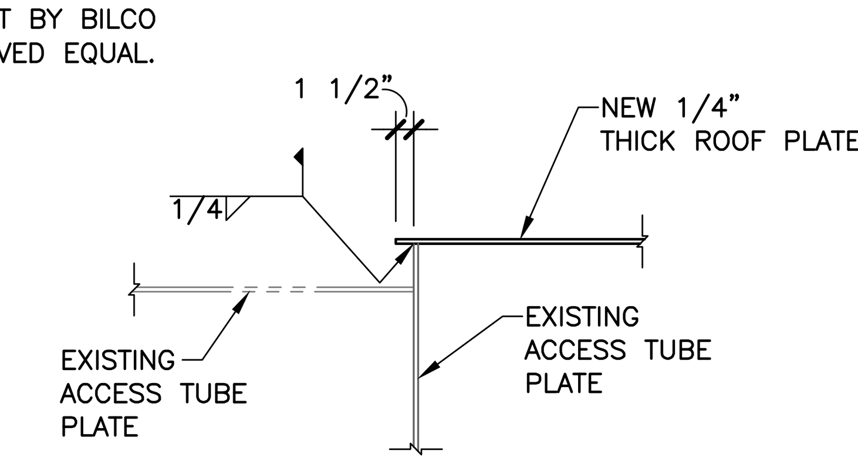
NOTES:

1. REF. ELEC. PLANS FOR NEW, CAPPED, AND REUSED HAND HOLES FOR CATHODIC PROTECTION SYSTEM MODIFICATIONS.
2. GRIND SMOOTH SHARP EDGES AND SLAG IN AND OUT TO SUCCESSFULLY ACCEPT COATING.
3. COVER PLATES SHALL BE WELDED TO THE EXTERIOR & INTERIOR OF THE TANK.

(305) ROOF HOLE COVER PLATE
SCALE : 3/4" = 1'-0"

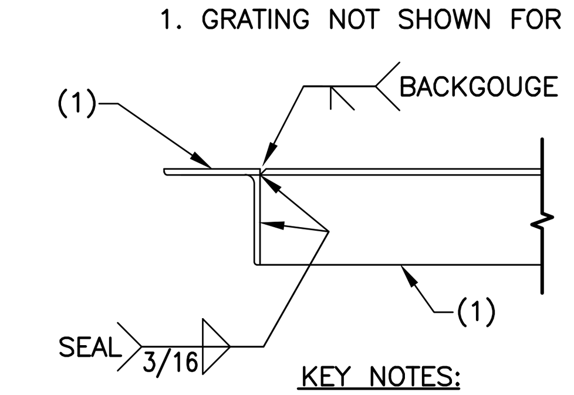


(Y) DETAIL
SCALE: 3" = 1'-0"



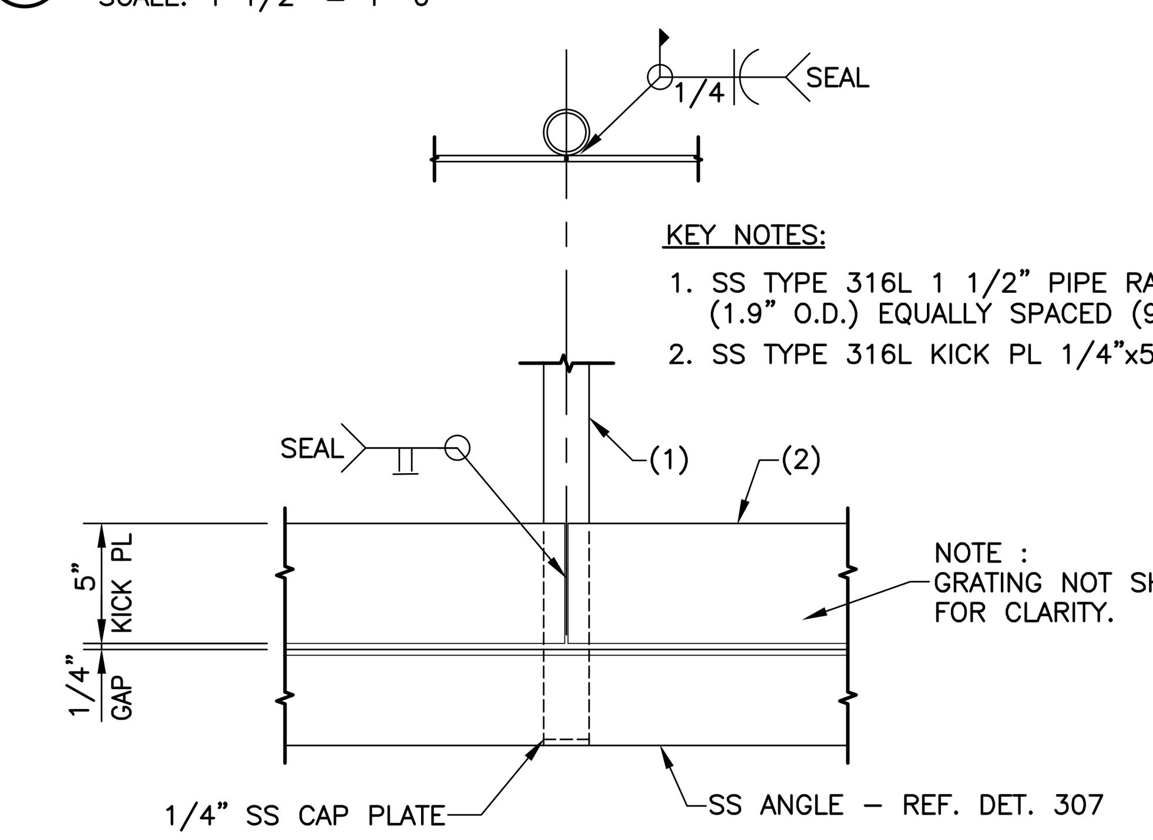
(306) SECTION
SCALE: 3/4" = 1'-0"

NOTE:
1. GRATING NOT SHOWN FOR CLARITY.



KEY NOTES:
1. NEW SS L 4x4x1/4

(308) SUPPORT ANGLE AT HATCH
SCALE: 1 1/2" = 1'-0"



KEY NOTES:
1. SS TYPE 316L 1 1/2" PIPE RAILING (1.9" O.D.) EQUALLY SPACED (9 TOTAL)
2. SS TYPE 316L KICK PL 1/4"x5"

(309) HANDRAIL AT KICK PLATE
SCALE: 1 1/2" = 1'-0"

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BENJAMIN MATTHEW BETZOLD
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PROFESSIONAL ENGINEER
8-15-2016

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MISC. TANK DETAILS
SHEET 1 OF 2

NO.	ISSUE	BY	DATE

F&N JOB NO. AU116177
DATE 08/15/16
DESIGNED BB
DRAWN RH
REVISED RH
CHECKED BB
FILE NAME S6.1.dwg

VERIFY SCALE
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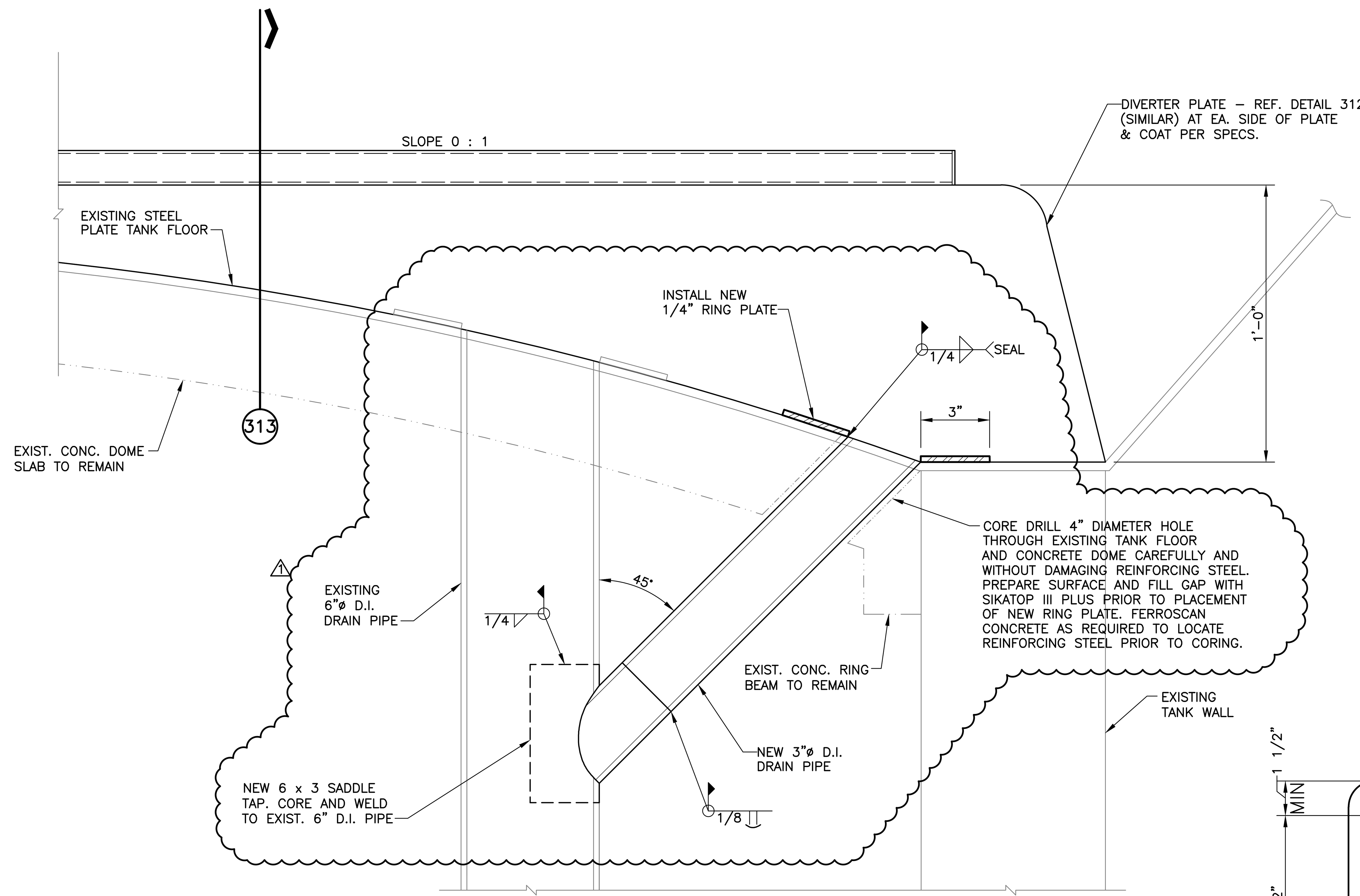
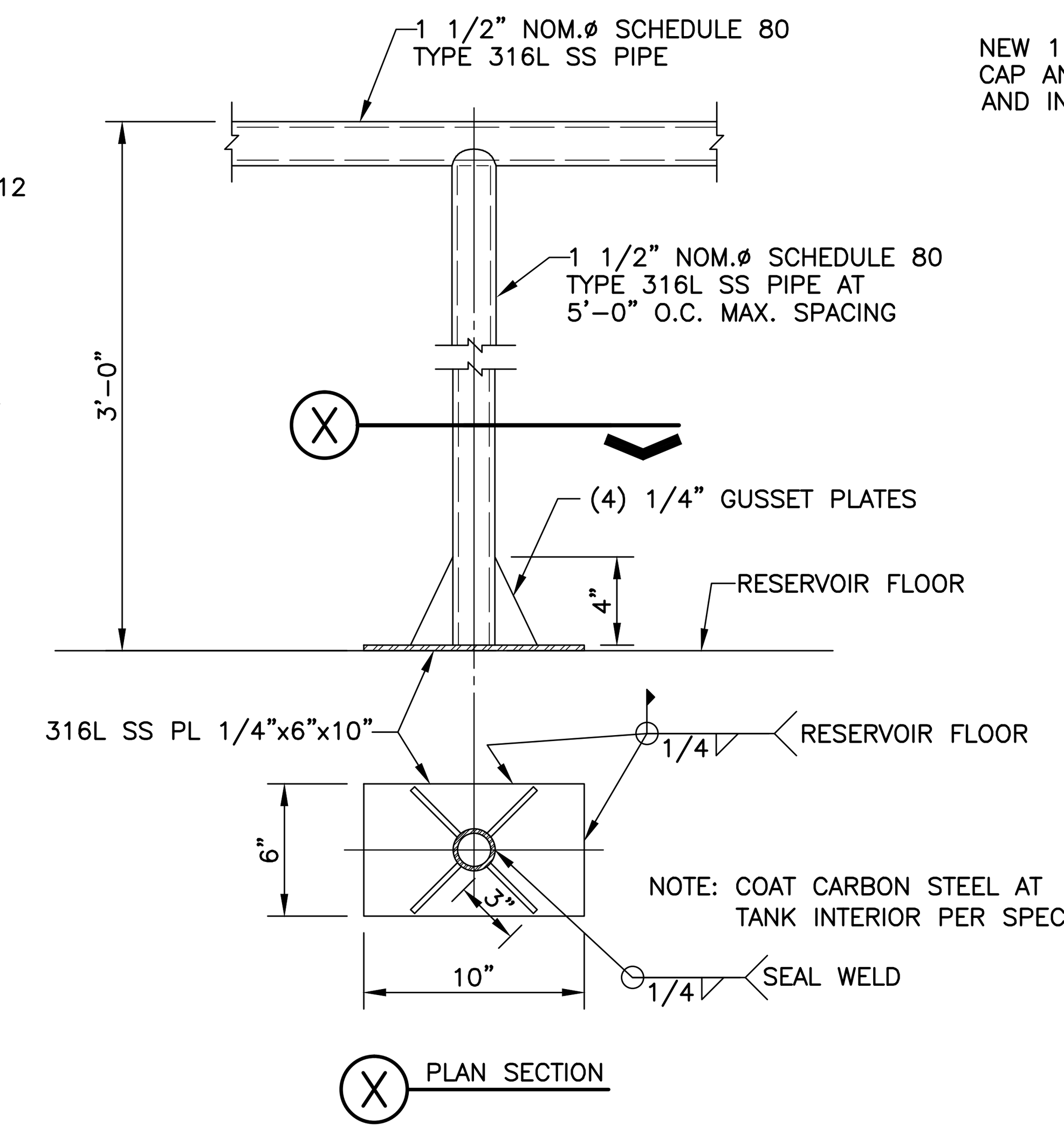
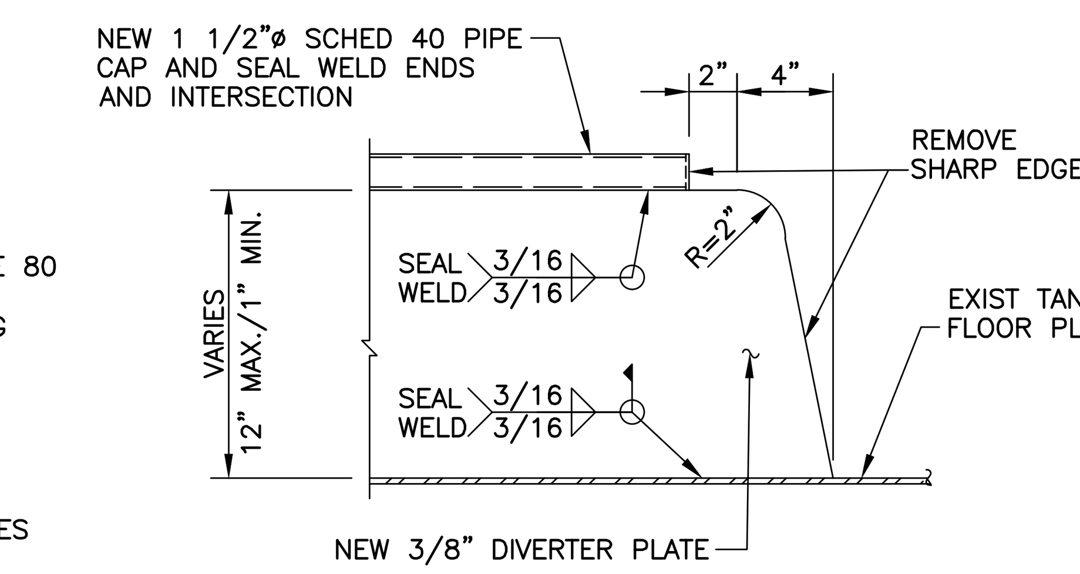


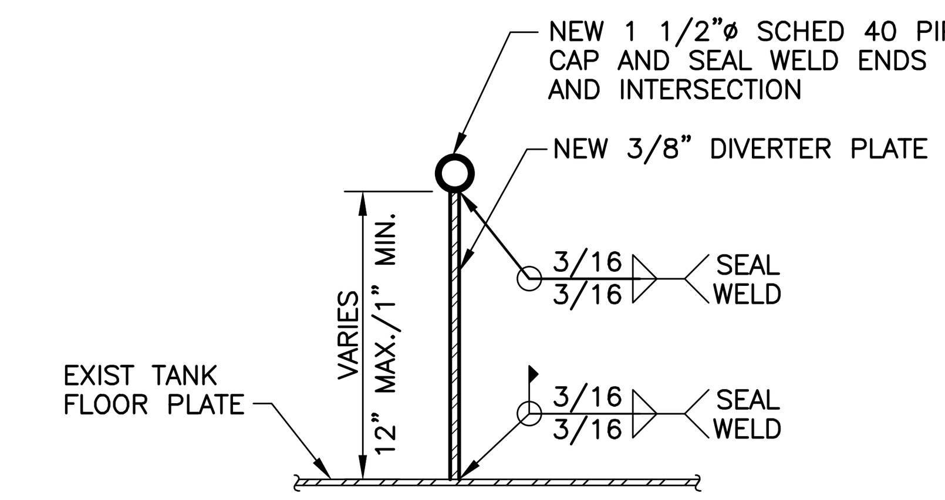
310 DRAIN DETAIL
SCALE: 3" = 1'-0"



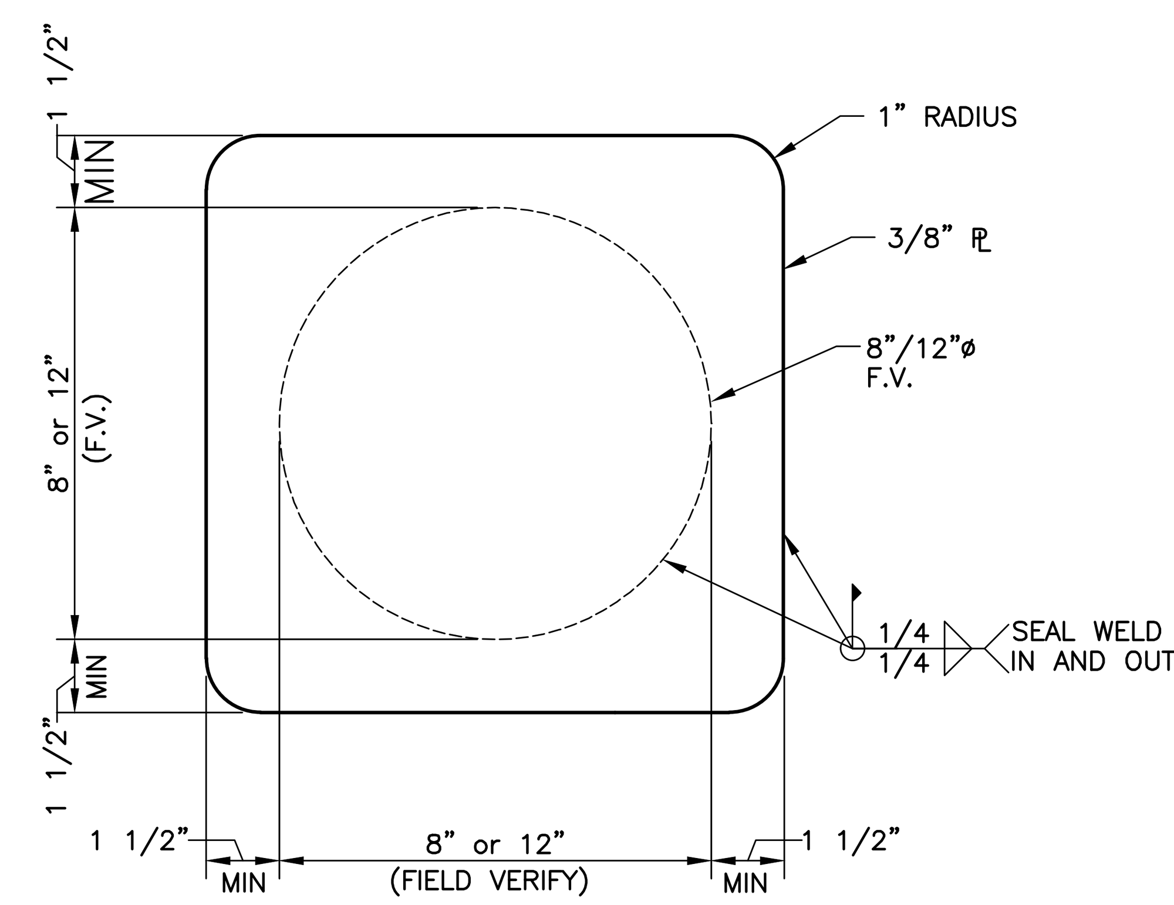
311 HANDRAIL AT RESERVOIR FLOOR
SCALE: 1 1/2" = 1'-0"



312 DETAIL
SCALE: 1 1/2" = 1'-0"

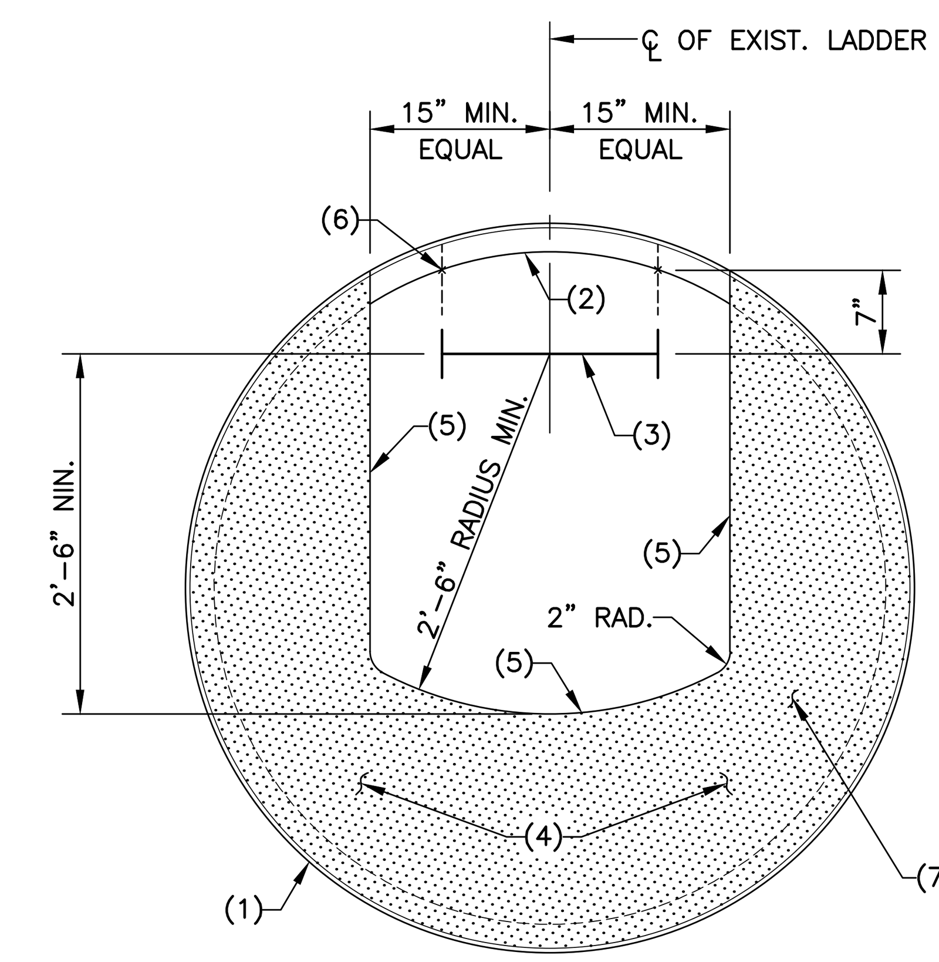


313 DETAIL
SCALE: 1 1/2" = 1'-0"



NOTES:
1. GRIND SMOOTH SHARP EDGES AND SLAG IN AND OUT TO SUCCESSFULLY ACCEPT COATING.
2. COVER PLATES SHALL BE WELDED TO THE INTERIOR OF THE TANK.

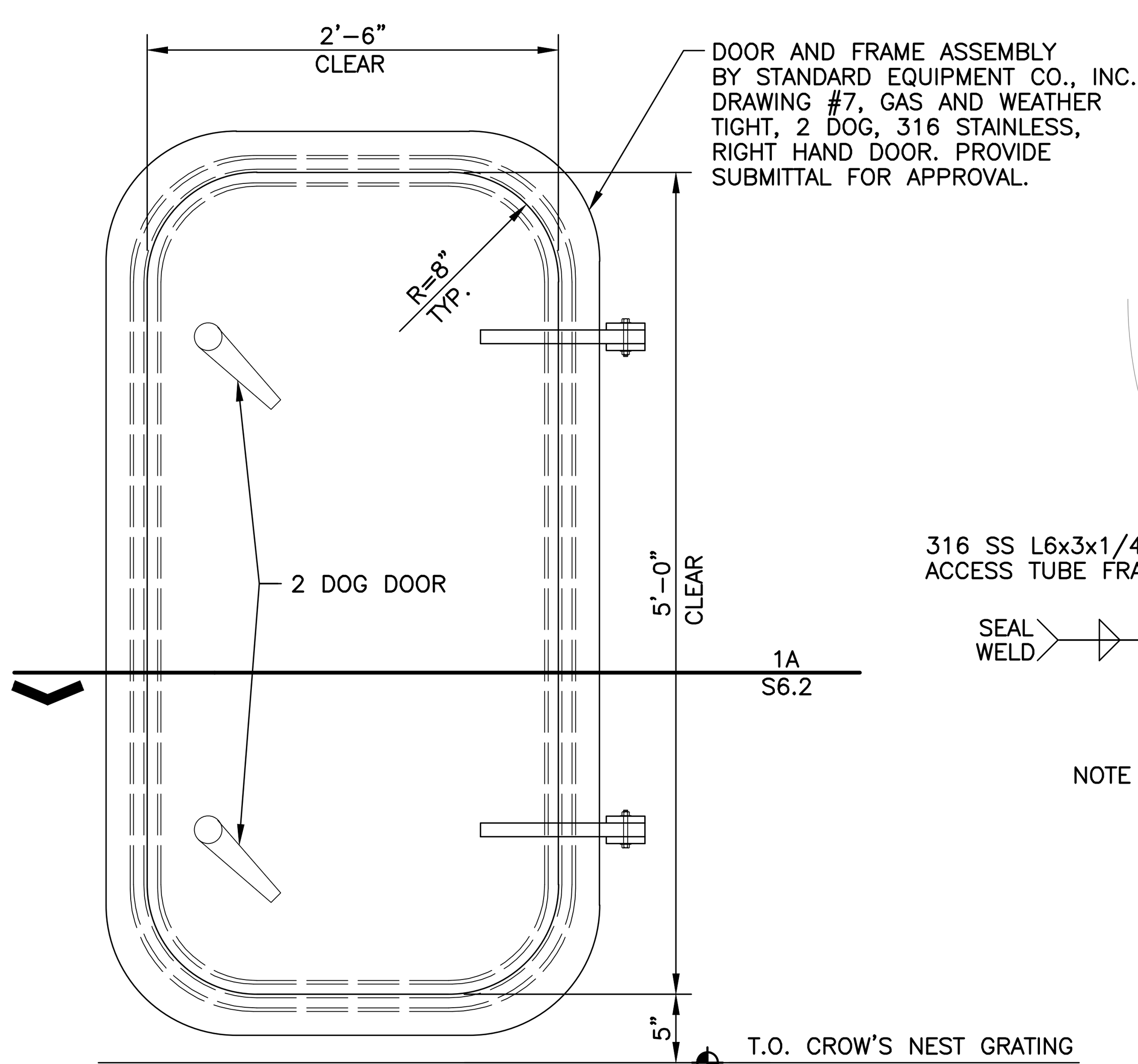
315 PIPE PENETRATION PLATE
SCALE: 3" = 1'-0"



KEY NOTES
1. EXISTING DRY ACCESS TUBE WALL TO REMAIN.
2. EXISTING PLATE SUPPORT ANGLE TO REMAIN.
3. NEW GALVANIZED LADDER : REF. APPLICABLE DETAIL.
4. EXISTING STEEL PLATE.
5. GRIND EDGES SMOOTH TO RADIUS OF APPROXIMATELY 1/2 THE EXISTING PLATE THICKNESS – SEE NOTE.
6. PROJECTED POINT FROM LADDER SIDE RAILS – EACH SIDE – FOR DIMENSIONING PURPOSES.
7. INSTALL SLIP-RESISTANT COATING. SEE COATING SPECS. FOR MORE INFORMATION.

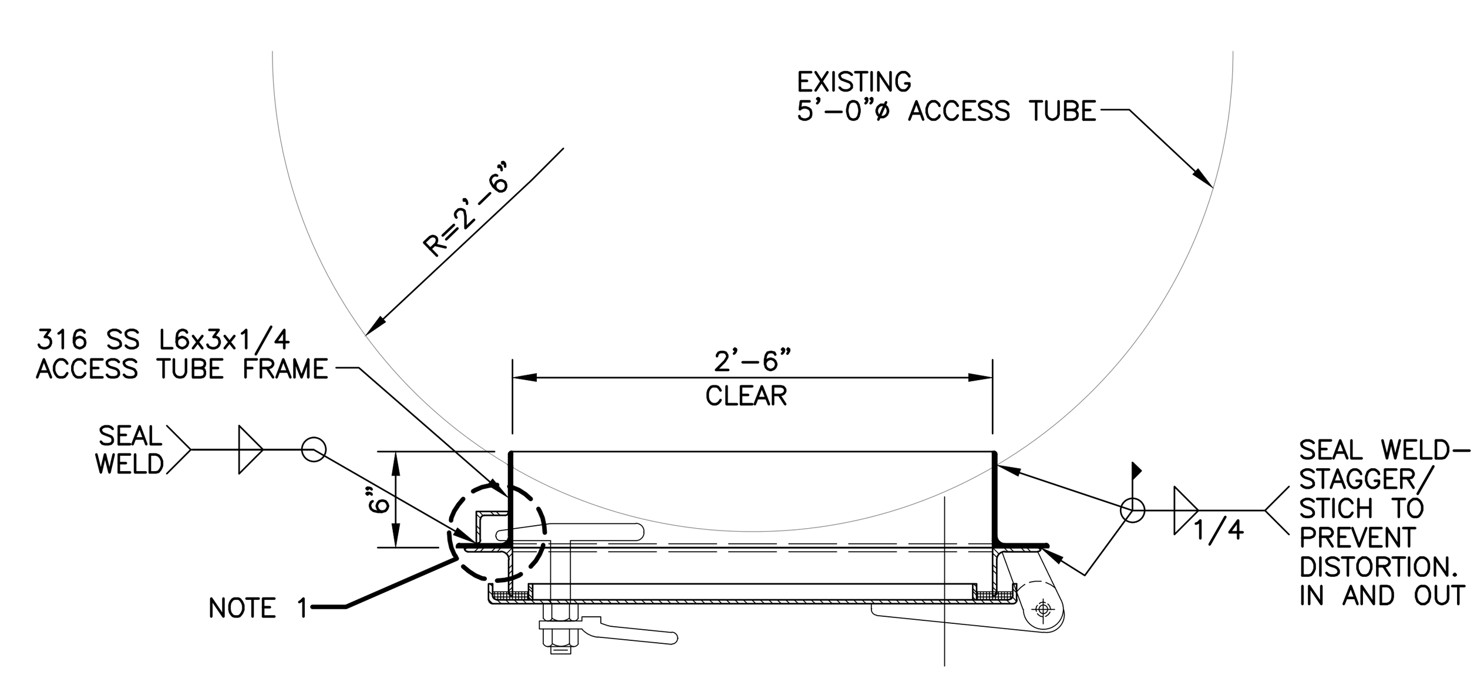
NOTE
CAREFULLY CUT EXISTING PLATE TO MIN. DIMENSIONS INDICATED AS REQUIRED PRIOR TO ROUNDING EDGES. PERFORM WITHOUT OVER CUTTING AND WITHOUT DAMAGING EXISTING MEMBERS.

317 SECTION @ DRY ACCESS TUBE AT PLATE MANWAY
SCALE: 3/4" = 1'-0"



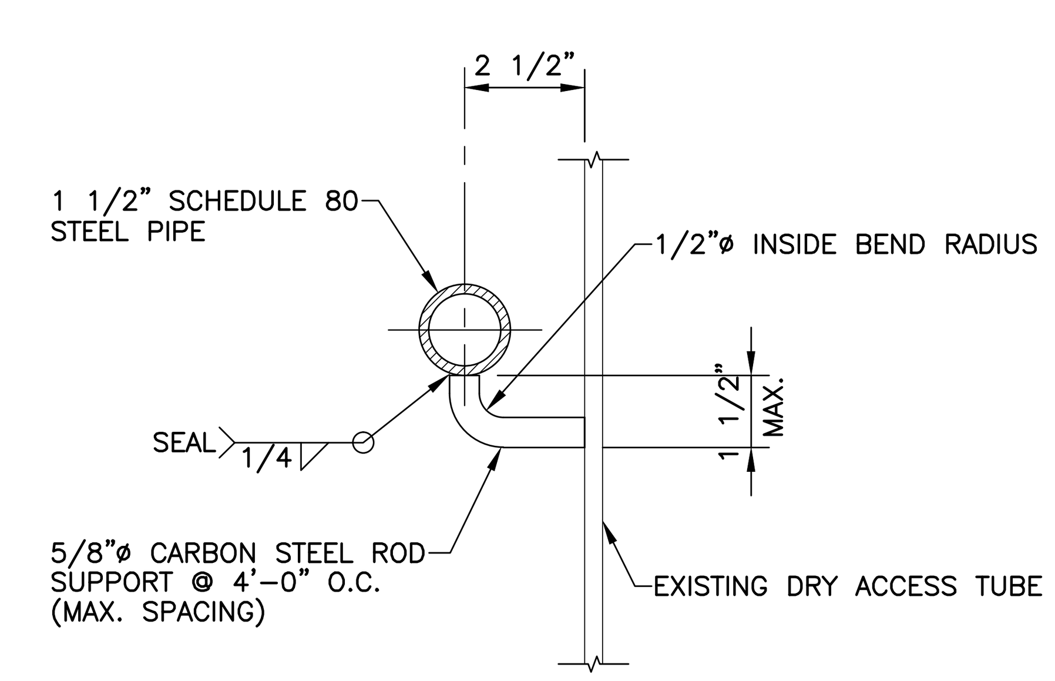
NOTES:
1. HASP AND GRAB HANDLE NOT SHOWN FOR CLARITY.
2. STANDARD EQUIPMENT CO., INC. CONTACT #: 800-239-3442.
3. THE EXISTING OPENING DIMENSIONS ARE NOT NECESSARILY THAT OF THOSE SHOWN ABOVE.

314 DOOR AT CROW'S NEST
SCALE: 1" = 1'-0"

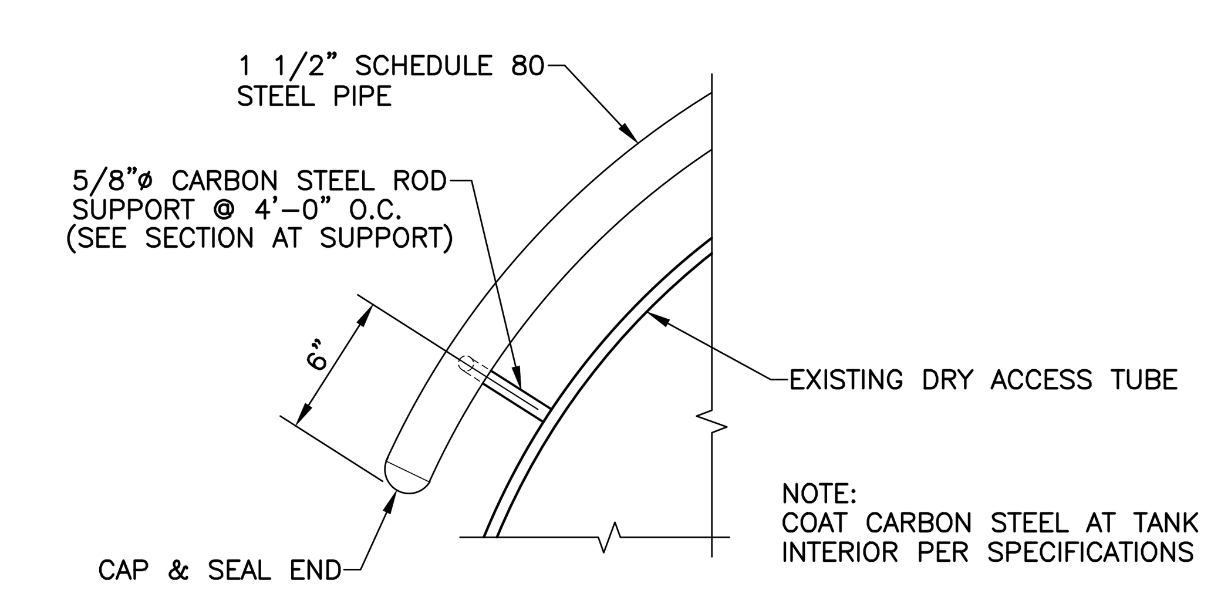


NOTE:
AT EACH DOG, A SECTION OF THE 6" AND 3" LEG OF THE ACCESS TUBE FRAME WILL NEED TO BE REMOVED FOR THE WEDGE CLOSURE OF THE DOOR ASSEMBLY. THE REMOVED AREA WILL NEED TO BE "BOXED" IN SO THAT THE ACCESS TUBE FRAME IS SEALED. (BOTH SIDES, TOP AND BOT.)

1A SECTION
SCALE: 1" = 1'-0"

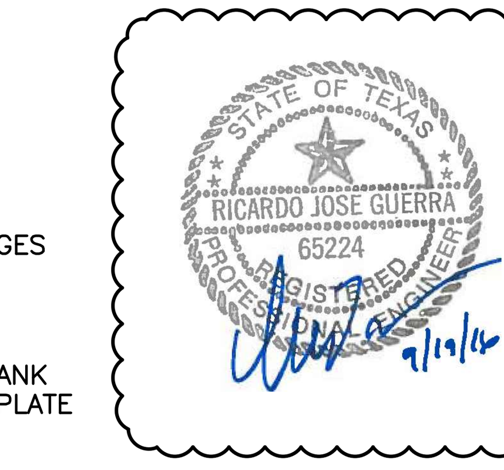


SECTION AT SUPPORT



PLAN VIEW AT END

316 TANK FLOOR HANDRAIL SUPPORTS @ DRY ACCESS TUBE
SCALE: 3" = 1'-0"



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MISC. TANK DETAILS
SHEET 2 OF 2

NO.	ISSUE	BY	DATE
1	REVISED DRAIN DETAIL 310	RH	9-19-16

F&N JOB NO. AU116177
DATE 08/15/16
DESIGNED BB
DRAWN RH
REVISED RH
CHECKED BB
FILE NAME S6.2.dwg

VERIFY SCALE 0 1
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GENERAL NOTES:

1. ALL EQUIPMENT SHOWN ON THE DEMOLITION DRAWINGS ARE EXISTING.

2. CROSS-HATCHED LINEWORK SHOWN ON THE DEMOLITION DRAWINGS DENOTES EQUIPMENT TO BE DEMOLISHED UNLESS OTHERWISE NOTED. ALL DEMOLITION ACTIVITIES SHALL ALSO BE FULLY COORDINATED WITH MECHANICAL/STRUCTURAL/CIVIL/ETC., DEMOLITION ACTIVITIES AND SHALL SUPPORT THE OPERATIONAL REQUIREMENTS OF THE PUMP STATION DURING ALL PHASES OF CONSTRUCTION. ALL DEMOLISHED ITEMS SHALL REMAIN THE PROPERTY OF THE OWNER. RELOCATE ALL DEMOLISHED ITEMS TO LOCATION(S) SPECIFIED BY OWNER AT NO ADDITIONAL COST TO THE OWNER.

3. EQUIPMENT/CONDUIT TAGS/NAMES HAVE BEEN ARBITRARILY ASSIGNED TO AID IN THE DRAWINGS. SOME EXISTING TAGS/NAMES HAVE BEEN USED WHERE POSSIBLE. CONTRACTOR SHALL MAKE EXTENSIVE VERIFICATION OF EXISTING EQUIPMENT PRIOR TO COMMENCING FULL SCALE DEMOLITION/RENOVATION ACTIVITIES.

4. SHOULD A POWER OUTAGE TO A FACILITY BE REQUIRED, THE CONTRACTOR SHALL REQUEST SUCH AN OUTAGE IN WRITING NO LESS THAN NINETY-SIX (96) HOURS IN ADVANCE. CONTRACTOR'S WRITTEN REQUEST SHALL IDENTIFY THE DESIRED DATE, TIME, DURATION, AND PURPOSE OF THE REQUESTED DAY UNLESS HE/SHE OBTAINS A WRITTEN APPROVAL FROM THE OWNER AUTHORIZING THE OUTAGE. THE OWNER RESERVES THE RIGHT TO MODIFY OR REJECT ANY REQUEST OF SUCH AN OUTAGE. MODIFICATION OR REJECTION OF THE CONTRACTORS REQUEST BY THE OWNER SHALL NOT BE CONSIDERED REASON FOR DELAYS IN THE CONSTRUCTION SCHEDULE. UNLESS OTHERWISE NOTED, THE DURATION OF THE OUTAGE SHALL BE LIMITED TO FOUR (4) HOURS OR LESS. THE OWNER RESERVES THE RIGHT TO LIMIT THE DURATION OF THE OUTAGE TO LESS THAN 4 HOURS. MODIFICATION OF THE OUTAGE DURATION BY THE OWNER SHALL NOT BE CONSIDERED REASON FOR DELAYS IN THE CONSTRUCTION SCHEDULE.

5. VERIFY LOCATION OF EXISTING FACILITIES PRIOR TO CONSTRUCTION OF FACILITIES PROPOSED IN THIS CONTRACT. TAKE CARE TO AVOID DAMAGE TO EXISTING FACILITIES. REPAIR ANY FACILITY DAMAGED IN THE COURSE OF CONSTRUCTION OF ANY PART OF THIS CONTRACT TO ITS ORIGINAL OPERATING CONDITION IMMEDIATELY, WITH REPAIR CREWS WORKING 24 HOURS PER DAY UNTIL THE DAMAGE IS REPAIRED AT NO ADDITIONAL COST TO THE OWNER.

6. THE CONTRACTOR SHALL BE AWARE THAT WHEN ANY EXISTING EQUIPMENT IS DISCONNECTED, REMOVED, RELOCATED OR OTHERWISE MODIFIED, THE POSSIBILITY MAY EXIST FOR SUCH ACTION TO LEAD TO INTERRUPTION OF OPERATION OF THE PUMP STATION IF EXTREME CARE, VERIFICATION, AND VALIDATION IS NOT CAREFULLY EXERCISED PRIOR TO COMMENCEMENT OF SUCH ACTIVITY. THE CONTRACTOR SHALL KNOW THAT ANY INTERRUPTION TO THE CONTINUITY OF THE PUMP STATION OPERATION AT ITS RATED CAPACITY IS UNACCEPTABLE DURING THE CONSTRUCTION COURSE OF THIS PROJECT. HOWEVER, SHOULD ANY INTERRUPTION TO THE PUMP STATION OPERATION OCCUR FOR ANY UNFORESEEN REASON, WHETHER TOTALLY ACCIDENTAL OR DUE TO IMPROPER FIELD INVESTIGATION AND IMPROPER PLANNING PRIOR TO COMMENCEMENT OF THE ELECTRICAL/INSTRUMENTATION DEMOLITION EFFORT, THE RESPONSIBLE CONTRACTOR SHALL DETERMINE THE PROBLEM, CORRECT IT, AND START UP THE INTERRUPTED EQUIPMENT WITHIN A CERTAIN TIME PERIOD AS DETERMINED BY THE OWNER AT NO ADDITIONAL COST TO THE OWNER. THE CONTRACTOR SHALL PROVIDE CONTINUOUS, 24-HOUR, LABOR, EQUIPMENT, MATERIAL, AND ACCESSORIES UNTIL SUCH TIME THAT ANY EFFECTED EQUIPMENT OPERATES AS PREVIOUSLY OPERATED, AT NO ADDITIONAL COST TO THE OWNER AND TO THE OWNER'S SATISFACTION.

7. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE APPLICABLE CONDUIT/WIRING TO EXISTING EQUIPMENT WHETHER SHOWN HERE OR NOT. THE CONTRACTOR SHALL EXERCISE EVERY PRECAUTION TO ELIMINATE HAZARDS IN DISCONNECTING ANY DEVICE FROM AN ELECTRICAL CIRCUIT. THE CONTRACTOR MUST TAKE GREAT CARE FOR THERE ARE NO AVAILABLE AS BUILT RECORDS ACCURATELY AND COMPLETELY IDENTIFYING THE EXISTING ROUTING OF ALL DUCTBANK/CONDUIT BETWEEN THE VARIOUS EXISTING EQUIPMENT AND THEIR COORDINATION WITH THE EXISTING ELECTRICAL SYSTEM. THEREFORE THE CONTRACTOR IS TO EXERCISE EXTREME CARE, VERIFY THE ROUTING OF EXISTING DUCTBANK/CONDUIT PRIOR TO FULL SCALE DEMOLITION OR RENOVATION ACTIVITIES. FOLLOWING THE DISCOVERY VERIFICATION OF THE EXISTING FIELD CONDITIONS, SHOULD ADJUSTMENTS BECOME A NECESSITY TO THE EXISTING OR PROPOSED SYSTEM (AS APPLICABLE), THE EXISTING DISCOVERED FIELD CONDITIONS MUST BE BROUGHT TO THE OWNERS ATTENTION FOR EXECUTION OF THE NECESSARY ADJUSTMENTS/MODIFICATIONS.

8. THE INTENT IS TO KEEP THE EXISTING FACILITIES OPERATIONAL AT ALL TIMES. COORDINATE WITH THE OWNER FOR SCHEDULING OF EQUIPMENT/POWER/INSTRUMENTATION AND CONTROL/PROCESS/ETC. OUTAGES REQUIRED PRIOR TO COMMENCING DEMOLITION/MODIFICATION ACTIVITIES.

9. SHOULD PROBLEMS OCCUR UPON THE ACTIVATION OF POWER, CORRECTION SHALL BE MADE PROMPTLY AT NO EXPENSE TO THE OWNER.

10. ALL ELECTRICAL SWITCHING, DE-ENERGIZATION OF LOADS, ENERGIZATION OF LOADS, ETC., SHALL BE PERFORMED IN THE PRESENCE OF, AND WITH THE CONSENT OF, THE OWNER.

11. NOT ALL REQUIREMENTS ASSOCIATED WITH THE INSTALLATION OF THE PROPOSED ELECTRICAL SYSTEM ARE SHOWN ON THE RENOVATION DRAWINGS. REFER TO OTHER CONTRACT DOCUMENTS FOR ADDITIONAL REQUIREMENTS.

12. THE OWNER'S EXISTING EQUIPMENT IS IN PERFECT WORKING CONDITION. SHOULD THE EXISTING EQUIPMENT, ITS ASSOCIATED INTERCONNECT CONDUIT/WIRE, ETC., AS APPLICABLE, BE DAMAGED OR BECOME OTHERWISE UNUSABLE DURING THE CONSTRUCTION COURSE OF THIS PROJECT, THE RESPONSIBLE CONTRACTOR SHALL DETERMINE THE PROBLEM, CORRECT IT, AND FURNISH AND INSTALL ALL NECESSARY WIRING/HARDWARE/ETC., TO MATCH EXISTING AND MAKE ALL FINAL CONNECTIONS SUCH THAT ALL AFFECTED EQUIPMENT OPERATES AS PREVIOUSLY OPERATED TO THE OWNERS SATISFACTION AT NO ADDITIONAL COST TO THE OWNER.

13. REFER TO THE CONSTRUCTION SEQUENCING REQUIREMENTS ELSEWHERE IN THE CONTRACT DOCUMENTS FOR ADDITIONAL REQUIREMENTS.

14. UPON COMPLETION OF RENOVATION ACTIVITIES, COVER AND SEAL ALL UNUSED CONDUIT/WIRE PENETRATIONS ON EXISTING MODIFIED PULLBOXES. IF EXISTING MODIFIED PULLBOX IS UNTAGGED, CONTRACTOR SHALL TAG THE PULLBOX PER SPECIFICATIONS.

GENERAL NOTES (CONTINUED):

15. THE EXISTING/DEMOLITION CONDUIT/WIRING FLOOR PLANS PROVIDED IN THIS SET OF DRAWINGS REFLECT ONLY SOME OF THE INFORMATION FOUND IN THE AVAILABLE RECORD DRAWINGS. THE CONTRACTOR SHALL VERIFY THE LOCATION OF EXISTING CONDUITS, CONDUIT WITH WIRING AND POSSIBLE PIPING MAY EXIST IN AREAS OF THE WALL/FLOOR TO BE CORE DRILLED. HOWEVER, IT IS THE CONTRACTOR'S RESPONSIBILITY TO REVIEW ALL AVAILABLE DOCUMENTATION, RECORD DRAWINGS, ETC. FOR ADDITIONAL CONFIRMATION. ADDITIONALLY, THE CONTRACTOR, AT HIS/HER OWN EXPENSE, MAY UTILIZE ANY METHOD/MEANS NECESSARY FOR EXACT FIELD VERIFICATION TO IDENTIFY LOCATION AND FUNCTION OF ANY CONDUIT/WIRING THAT MAY POTENTIALLY BE EMBEDDED/BURIED IN THE CONCRETE WALLS/FLOORS OF THE AREA IN WHICH CORE DRILLING IS SCHEDULED TO TAKE PLACE. SUCH EFFORT IS STRICTLY THE CONTRACTOR'S PREROGATIVE AND WHEN EXECUTED SHALL NOT BE CONSIDERED AS ADDED SERVICES BY THE CONTRACTOR NOR SHALL THESE SERVICES BE COMPENSATED BY THE OWNER, I.E., SUCH SERVICES WILL BE PROVIDED BY THE CONTRACTOR AS DEEMED NECESSARY BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER. FOLLOWING THE RESULTS OF THE ACTUAL FIELD VERIFICATION MEANS/METHODS UTILIZED BY THE CONTRACTOR, SHOULD ADJUSTMENT/MODIFICATION OF THE CORE DRILLING BECOME A NECESSITY, THEN THE EXISTING DISCOVERED FIELD CONDITIONS MUST BE BROUGHT TO THE ENGINEER'S ATTENTION FOR THE EXECUTION OF THE NECESSARY ADJUSTMENTS/MODIFICATIONS AT NO ADDITIONAL COST TO THE OWNER.

16. PROPOSED ITEMS SHOWN ON THE PROPOSED/RENOVATION/MODIFICATION DRAWINGS ARE SHOWN IN DARK LINEWORK. EXISTING AND FUTURE ITEMS ARE SHOWN IN LIGHT LINEWORK, UNLESS NOTED OTHERWISE.

17. THE ACTUAL REQUIRED SIZE OF CONDUIT ENTRANCE AREAS TO BE DETERMINED BY THE MANUFACTURER. THE LOCATION AND SIZE OF THE CONDUIT ENTRANCE AREAS FOR THE SWITCHGEAR, MOTOR CONTROL CENTER, SWITCHBOARD, TRANSFORMER, VARIABLE FREQUENCY DRIVE, ETC., AS APPLICABLE, SHALL BE COORDINATED WITH THE APPLICABLE STRUCTURE PLANS. REFER TO THE APPLICABLE CIVIL/STRUCTURAL/ MECHANICAL/ELECTRICAL, ETC. DRAWINGS.

18. LOCATIONS AND SIZES OF ELECTRICAL EQUIPMENT ARE APPROXIMATE. CONTRACTOR SHALL FIELD VERIFY ACTUAL CONDITIONS AND ALL POINTS OF CONNECTION PRIOR TO INSTALLATION OF PROPOSED COMPONENTS.

19. NOT ALL ELECTRICAL/MECHANICAL/STRUCTURAL/CIVIL/ETC. COMPONENTS ARE SHOWN ON EACH DRAWING. REFER TO THE CIVIL/MECHANICAL/STRUCTURAL DRAWINGS FOR MANY OF THE GENERAL LOCATIONS, QUANTITY, AND TYPES OF PROPOSED EQUIPMENT, INSTRUMENTS, ETC., TO BE INSTALLED. IN ADDITION, REFER TO THE APPLICABLE ELECTRICAL DRAWINGS AND MAKE ALL FINAL CONNECTIONS.

20. CONTRACTOR SHALL COORDINATE ROUTE OF PROPOSED CONDUIT/WIRE WITH EXISTING AND PROPOSED CIVIL/MECHANICAL/ STRUCTURAL/ELECTRICAL SYSTEMS/COMPONENTS/ EQUIPMENT/UTILITIES, ETC.

21. CONTRACTOR SHALL SIZE ALL PULL/JUNCTION BOXES PER, AND IN ACCORDANCE WITH, THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (N.E.C.).

22. EXACT LOCATIONS OF MECHANICAL/STRUCTURAL/CIVIL COMPONENTS ARE NOT SHOWN ON THE ELECTRICAL, INSTRUMENTATION, OR CONTROL SYSTEM DRAWINGS. REFER TO MECHANICAL/STRUCTURAL/CIVIL DRAWINGS FOR EXACT LOCATIONS OF MECHANICAL/STRUCTURAL/CIVIL ITEMS.

23. EXTREME CARE MUST BE TAKEN FOR THE INSTALLATION OF THE ELECTRICAL DUCT BANKS SINCE THERE ARE NO AVAILABLE AS BUILT RECORDS OF PROFILES IDENTIFYING THE LOCATION AND INVERT ELEVATIONS OF EXISTING UNDERGROUND ELECTRICAL SYSTEM (CONDUITS, DUCT BANK, GROUNDING NETWORK, ETC.) AND UNDERGROUND MECHANICAL PIPING. ROUTING OF NEW DUCT BANK SHOWN IS BASED ON SCHEMATIC KNOWLEDGE OF THE SIZE OF MECHANICAL PIPING AND THEIR APPROXIMATE SIZE AND/OR LOCATION. NO DATA IS AVAILABLE PERTAINING TO EXISTING UNDERGROUND ELECTRICAL DUCT BANK SYSTEM AND ITS COORDINATION WITH THE UNDERGROUND MECHANICAL SYSTEM. THEREFORE THE CONTRACTOR IS TO EXERCISE EXTREME CARE, VERIFY LOCATION/ROUTING/ELEVATION OF EXISTING UNDERGROUND UTILITIES PRIOR TO COMMENCING FULL SCALE INSTALLATION PROCESS OF THE PROPOSED DUCT BANK SYSTEM. FOLLOWING THE DISCOVERY VERIFICATION OF EXISTING UNDERGROUND UTILITIES, SHOULD ADJUSTMENT/MODIFICATIONS BECOME A NECESSITY TO EITHER THE EXISTING OR PROPOSED SYSTEM (AS APPLICABLE), THE EXISTING DISCOVERED FIELD CONDITIONS MUST BE BROUGHT TO THE OWNER'S ATTENTION FOR EXECUTION OF THE NECESSARY ADJUSTMENTS/MODIFICATIONS.

24. PLEASE NOTE THAT THE EXISTING EQUIPMENT IS IN WORKING CONDITION. IF ANY OF THE EXISTING EQUIPMENT/ COMPONENTS WHICH SHALL BE REUSED IS DAMAGED OR STOPS FUNCTIONING CORRECTLY, THE CONTRACTOR IS RESPONSIBLE FOR FURNISHING AND INSTALLING NEW EQUIPMENT/ COMPONENTS AS APPROVED BY THE OWNER AND MAKE ALL FINAL TERMINATIONS AT NO ADDITIONAL COST TO THE OWNER.

GENERAL NOTES (CONTINUED):

25. THE MAJORITY OF THE CONDUIT/WIRE ROUTES SHOWN ON THE DRAWINGS ARE SHOWN PARTIALLY (WITH "HOMERUNS"). ADDITIONALLY, CERTAIN SPECIFIC CONDUIT/WIRE/PULLBOX/ETC., LOCATION/ROUTING REQUIREMENTS ARE SHOWN ON THE DRAWINGS. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION/ROUTING FOR, FURNISH, AND INSTALL THE ENTIRE LENGTH OF THE PROPOSED CONDUIT/WIRE, REQUIRED INTERMEDIATE PULLBOXES, RELATED FITTINGS, AND ALL REQUIRED MOUNTING HARDWARE AND MAKE ALL FINAL CONNECTIONS. THE CONTRACTOR SHALL SIZE ALL NECESSARY REQUIRED PULLBOXES TO FACILITATE THE PROPOSED CONDUIT/WIRE INSTALLATION. ALSO REFER TO THE APPLICABLE CONDUIT/WIRE SCHEDULE, ONE-LINE DIAGRAMS, FLOOR PLAN DRAWINGS, ETC., TO AIDE IN THE LOCATION/ROUTING OF THE PROPOSED CONDUIT/WIRE/PULLBOXES/MOUNTING HARDWARE/ETC. THE CONTRACTOR SHALL COORDINATE THE INSTALLATION OF THE PROPOSED ELECTRICAL EQUIPMENT WITH THE INSTALLATION OF THE PROPOSED CIVIL/MECHANICAL/STRUCTURAL/ETC. UTILITIES, AND THE EXISTING CIVIL/MECHANICAL/STRUCTURAL/ETC. UTILITIES.

26. CONTRACTOR SHALL SIZE, FURNISH, AND INSTALL ALL CONDUIT/WIRE, PULLBOXES, AND ALL NECESSARY RELATED HARDWARE TO INTERCONNECT ALL PROPOSED VENDOR EQUIPMENT PACKAGED SYSTEM SUB-COMPONENTS WITH THEIR RESPECTIVE PROPOSED CONTROL PANEL/MOTOR CONTROL CENTER/ETC., AS APPLICABLE. FURNISH AND INSTALL SUITABLE SUPPORT CHANNELS/CONCRETE EQUIPMENT PAD AS REQUIRED TO SUPPORT THE CONTROL PANELS ETC., AS APPLICABLE, INSTALL THE CONTROL PANELS ETC., AND MAKE ALL FINAL CONNECTIONS PER THE RECOMMENDATIONS AND WIRING DIAGRAMS PROVIDED BY THE EQUIPMENT MANUFACTURER. ALSO ADHERE TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (N.E.C) AND THE SPECIFICATIONS. SHOULD ADDITIONAL FIELD INTERCONNECT WIRING BE REQUIRED TO FACILITATE THE FUNCTIONAL OPERATION OF THE PACKAGED CONTROL SYSTEM, THE CONTRACTOR SHALL SIZE, FURNISH, AND INSTALL THE ADDITIONAL CONDUIT/WIRE, FIELD ROUTE THE PROPOSED CONDUIT/WIRE PER THE SPECIFICATIONS, ADD ALL NECESSARY TERMINAL BLOCKS, ETC., COMPLETE WITH ALL NECESSARY WIRING TO FACILITATE A COMPLETE AND FUNCTIONAL INSTALLATION, AND MAKE ALL FINAL CONNECTIONS PER THE MANUFACTURER'S RECOMMENDATIONS, THE MANUFACTURER'S WIRING DIAGRAMS, AND PERFORM ALL ASPECTS OF THE WORK TO THE SATISFACTION OF THE OWNER AT NO ADDITIONAL COST TO THE OWNER.

27. SEAL ALL DEMOLISHED CONDUIT/WIRE PENETRATIONS THROUGH STRUCTURE, THAT ARE NOT REUSED DURING RENOVATION ACTIVITIES, WITH 50 YEAR NON-SHRINK WATER TIGHT GROUT (GROUT FLUSH WITH STRUCTURAL FLOOR/WALL SLAB). ALSO REFER TO THE ELECTRICAL DETAILS FOR ADDITIONAL INFORMATION AND MAKE ALL FINAL CONNECTIONS.

28. ANY MODIFICATION TO THE ROADWAY/CURBING/SIDEWALK/FENCE/ LANDSCAPING/ GRASSES/ ETC., WHETHER SHOWN ON THE DRAWINGS OR NOT, SHALL BE REPAIRED TO MATCH EXISTING TO THE SATISFACTION OF THE OWNER AT NO ADDITIONAL COST TO THE OWNER.

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THE CITY OF AUSTIN
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ELECTRICAL
GENERAL NOTES

NO.	ISSUE	BY	DATE

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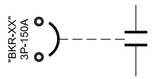
ELECTRICAL DRAWING SYMBOLS

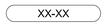


LOW VOLTAGE THERMAL/MAGNETIC CIRCUIT BREAKER WITH INTEGRAL AUXILIARY CONTACT

THERMAL/MAGNETIC MOLDED CASE CIRCUIT BREAKER, 3 POLE, 100A.

CONNECTION TO EQUIPMENT GROUND BUS (EARTH GROUND)

CONTROL PANEL, SPACE HEATER ENCLOSURE, FIELD CONTROL STATION, OR POWER DISTRIBUTION PANEL.



ELECTRICAL CONDUIT TAG. REFER TO CONDUIT SCHEMATICS AND CONDUIT/WIRE SCHEDULE.

WIRING AND TERMINAL DEVICE LEGEND

WIRING BETWEEN PANELS OR TO A FIELD MOUNTED DEVICE.

WIRE JUMPER CONNECTION

DEVICE TERMINAL CONNECTION

TERMINAL BLOCK LOCATED IN CATHODIC PROTECTION SYSTEM CONTROL PANEL. ANY DEVICE SHOWN WITH DEVICE WIRING TERMINALS CONNECTED DIRECTLY TO THESE SYMBOLS WITH SOLID LINES IS ALSO LOCATED IN CATHODIC PROTECTION SYSTEM CONTROL PANEL, AS APPLICABLE.

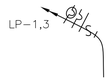
TERMINAL BLOCK LOCATED IN FIELD EQUIPMENT. ANY DEVICE SHOWN WITH DEVICE WIRING TERMINALS CONNECTED DIRECTLY TO THESE SYMBOLS WITH SOLID LINES IS ALSO LOCATED IN FIELD EQUIPMENT, AS APPLICABLE.

TERMINAL BLOCK LOCATED IN PANELS "LS-CP-LVL1", LS-LIT-100" OR "LS-LIT-200" AS APPLICABLE. ANY DEVICE SHOWN WITH DEVICE WIRING TERMINALS CONNECTED DIRECTLY TO THESE SYMBOLS WITH SOLID LINES IS ALSO LOCATED IN PANELS "LS-CP-LVL1", LS-LIT-100" OR "LS-LIT-200", AS APPLICABLE.

TERMINAL BLOCK LOCATED IN "LC-SC.RTU-001" AND WIRED DIRECTLY TO THE PLC. ANY DEVICE SHOWN WITH DEVICE WIRING TERMINALS CONNECTED DIRECTLY TO THESE SYMBOLS WITH SOLID LINES IS ALSO LOCATED IN "LC-SC.RTU-001" AND WIRED DIRECTLY TO THE PLC, AS APPLICABLE.

ELECTRICAL DRAWING SYMBOLS

3/4"-3#10(P), 1#10(G) — CONDUIT AND WIRE DESIGNATION. E.G. 3/4" CONDUIT, 3#10 POWER WIRES, 1#10 GROUND WIRE.
(P) POWER (N) NEUTRAL
(G) GROUND (SH) SPACE HEATER
(C) CONTROL (IG) ISOLATED GROUND
(I) INSTRUMENTATION



HOMERUN TO PANEL.
CIRCUIT NUMBERS INDICATED. SHORT HASH MARKS INDICATE PHASE WIRES; LONG HASH MARK INDICATES NEUTRAL WIRE; MARK INDICATES EQUIPMENT GROUND WIRE; INDICATES ISOLATED GROUND WIRE; S INDICATES SWITCHED WIRE. NUMBER OF ARROWHEADS CORRESPONDS TO NUMBER OF CIRCUITS.

GROUND ELECTRODE OR GROUND TEST WELL

BARE COPPER GROUND WIRE

INDICATES EXOTHERMIC WELD

TYPICAL DUCT BANK SECTIONAL VIEW.
SOLID CIRCLE REPRESENTS AN OCCUPIED CONDUIT.
HOLLOW CIRCLE REPRESENTS AN EMPTY CONDUIT.
REFER TO APPROPRIATE CONDUIT/WIRE SCHEDULE.

CONDUIT RUN CONCEALED IN CEILING, WALLS, SLAB.

CONDUIT RUN EXPOSED

CONDUIT TURNING DOWN

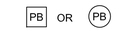
CONDUIT TURNING UP

FLEXIBLE CONDUIT

CONDUIT CAPPED FOR FUTURE USE

CONDUIT SEALING FITTING

JUNCTION BOX



PULL BOX

DISCONNECT SWITCH (NONFUSED)

DISCONNECT SWITCH COMBINATION MOTOR STARTER

DISCONNECT SWITCH ENCLOSED CIRCUIT BREAKER

SELECTOR SWITCH

PUSH BUTTON

INDICATING LIGHT

PHOTOCELL

DUPLEX RECEPTACLE
"7" INDICATES CIRCUIT NUMBER,
MOUNTING HEIGHT AS INDICATED
(36" SHOWN)
WITH THE FOLLOWING OPTIONS: "WP" WEATHER PROOF, "GFI-GROUND FAULT PROTECTION"

SINGLE POLE SWITCH

LIGHTING FIXTURE
"3" INDICATES CIRCUIT NUMBER
"A" INDICATES TYPE OF FIXTURE
"b" INDICATES SWITCH NUMBER

TYPICAL INSTRUMENT
(FLOW INDICATING TRANSMITTER SHOWN)

WIRING SCHEMATICS SYMBOLS

ELAPSED TIME METER

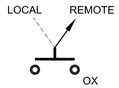
FUSE

DRAW OUT DISCONNECTS

CONNECTION TO EQUIPMENT GROUND BUS (EARTH GROUND)

CONNECTION TO ISOLATION GROUND BUS

CONNECTION TO EQUIPMENT CHASSIS GROUND



2 POSITION SELECTOR SWITCH WITH MULTIPLE CONTACTS AS REQUIRED (NOT SHOWN)

THERMAL/MAGNETIC CIRCUIT BREAKER

MOTOR SPACE HEATER

CONTROL RELAY COIL

POSITION SWITCH NORMALLY CLOSED CONTACTS.
NUMBER IN PARENTHESIS INDICATES DEVICE CONTACT NUMBER IN ORDER OF APPEARANCE

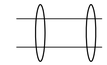
POSITION SWITCH NORMALLY OPEN CONTACTS.
NUMBER IN PARENTHESIS INDICATES DEVICE CONTACT NUMBER IN ORDER OF APPEARANCE

PILOT LIGHT R=RED, G=GREEN, W=WHITE, A=AMBER, Y=YELLOW, O=ORANGE (RED SHOWN)

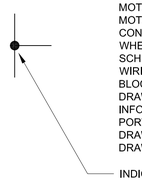
INSTRUMENT RELAY CONTACT SPDT (FORM C) CONTACT

MOMENTARY PUSH-BUTTON
NORMALLY CLOSED CONTACTS

WIRING SCHEMATICS SYMBOLS



2-CONDUCTOR SHIELDED CABLE

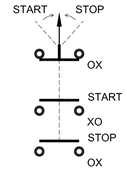


TYPICAL CONTROL LOGIC WIRE JUMPER USED FOR JUMPERS LOCATED ENTIRELY INSIDE OF THE MOTOR CONTROL CENTER OR COMBINATION MOTOR STARTER. USE ONLY IN THE MOTOR CONTROL CENTER/COMBINATION MOTOR STARTER WHERE SPECIFICALLY SHOWN ON THE CONTROL SCHEMATIC CONTRACT DRAWINGS. ALL OTHER WIRING SHALL BE TERMINATED TO TERMINAL BLOCKS. ALSO REFER TO THE CONTRACT DRAWINGS/SPECIFICATIONS FOR ADDITIONAL INFORMATION. THIS SYMBOL ONLY APPEARS ON A PORTION OF THE CONTROL SCHEMATIC CONTRACT DRAWINGS, AND ON NO OTHER CONTRACT DRAWING.

INDICATES WIRE JUMPER

CONTROL RELAY NORMALLY OPEN CONTACTS.
NUMBER IN PARENTHESIS INDICATES DEVICE CONTACT NUMBER IN ORDER OF APPEARANCE

CONTROL RELAY NORMALLY CLOSED CONTACTS.
NUMBER IN PARENTHESIS INDICATES DEVICE CONTACT NUMBER IN ORDER OF APPEARANCE



2 POSITION SELECTOR SWITCH NORMALLY CLOSED IN STOP POSITION WITH SPRING RETURN AND MULTIPLE SETS OF MECHANICALLY INTERLOCKED CONTACTS (2 SHOWN)

ABBREVIATION	DESCRIPTION
A	AMPERE, AUTO
AWG	AMERICAN WIRE GAGE
BKR	BREAKER
CB	CIRCUIT BREAKER
CP	CONTROL PANEL
DC	DIRECT CURRENT
ETM	ELAPSED TIME METER
FCS	FIELD CONTROL STATION
FIT	FLOW INDICATING TRANSMITTER
GFI	GROUND FAULT INTERRUPTER
GND	GROUND
H	HOT, HAND
I&C	INSTRUMENTATION AND CONTROL
I/O	INPUT/OUTPUT
IG	ISOLATED GROUND
KVA	KILO-VOLT AMPERE
LIT	LEVEL INDICATING TRANSMITTER
LP	LIGHTING PANEL
LSC	LIMIT SWITCH CLOSED
LSO	LIMIT SWITCH OPENED
MCC	MOTOR CONTROL CENTER
N	NEUTRAL
NEC	NATIONAL ELECTRICAL CODE
PB	PUSH BUTTON, PULL BOX
PC	PHOTO CELL
PLC	PROGRAMMABLE LOGIC CONTROLLER
RTU	REMOTE TERMINAL UNIT
SH	SPACE HEATER

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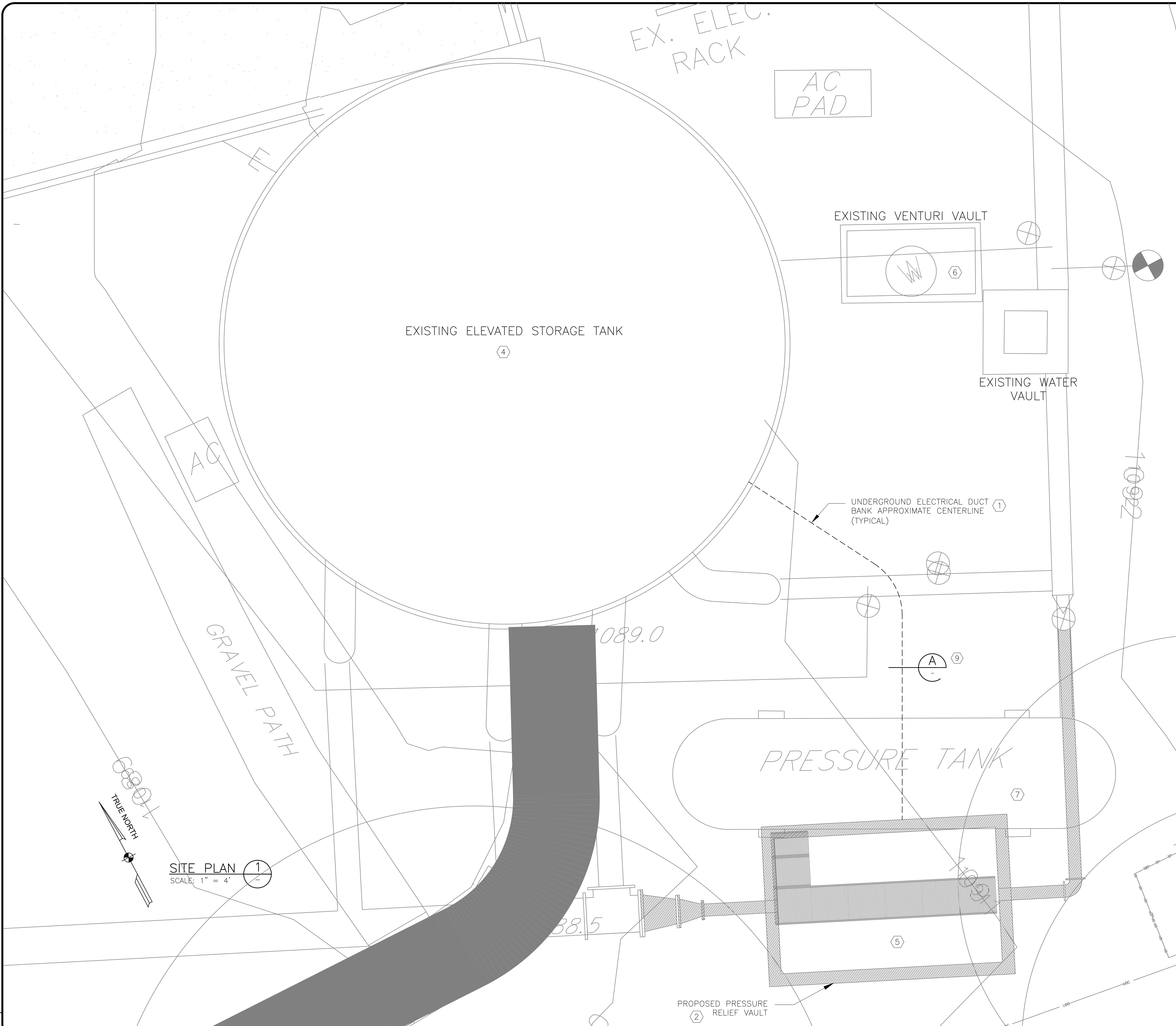

KEY NOTES:

1. SPACE AND ENCASE CONDUITS IN UNDERGROUND DUCT BANK PER APPLICABLE DETAILS ON DRAWING NO. [E–11].
2. THE PRESSURE RELIEF VAULT IS PROPOSED; HOWEVER, IT IS SHOWN IN LIGHT LINEWORK FOR CLARITY PURPOSES.
3. FOR CONDUIT SIZE, CONDUCTOR FILL, ETC., REFER TO CONDUIT AND WIRE SCHEDULE ON DRAWING NO., [E–05].
4. REFER TO STORAGE TANK PLAN VIEW ON DRAWING NO. [E–05] FOR ADDITIONAL INFORMATION.
5. REFER TO PRESSURE RELIEF VAULT PLAN VIEW ON DRAWING NO. [E–08] FOR ADDITIONAL INFORMATION.
6. DISCONNECT EXISTING FLOW INDICATING TRANSMITTER LOCATED IN EXISTING VENTURI VAULT AND RELOCATE WITHIN EXISTING PUMP STATION. DISCONNECT AND REMOVE EXISTING INSTRUMENTATION WIRING IN IT'S ENTIRETY WHICH ROUTES FROM THE EXISTING PLC WITHIN THE EXISTING RTU CABINET TO THE EXISTING VENTURI VAULT. CONTRACTOR SHALL FIELD VERIFY AND NOTE WHERE THE EXISTING INSTRUMENT WIRING IS CONNECTED TO WITHIN THE EXISTING RTU CABINET. DISCONNECT AND REMOVE EXISTING CONDUIT ROUTING WITHIN THE EXISTING VENTURI VAULT. CUT CONDUIT FLUSH AT ENTRY INTO VENTURI VAULT AND SEAL AND FINISH OUT TO MATCH THE EXISTING FINISHED SURFACE SIMILAR TO DETAILS ON DRAWING NO. [E–14]. REFER TO FLOOR PLAN DRAWING NO. [E–05] FOR ADDITIONAL INFORMATION. EXISTING BURIED/UNDERGROUND CONDUIT SHALL REMAIN AND BE ABANDONED IN PLACE.
7. DISCONNECT AND REMOVE EXISTING PRESSURE TANK IN IT'S ENTIRETY. DISCONNECT AND REMOVE EXISTING WIRING FROM PRESSURE TANK BACK TO SOURCE IN IT'S ENTIRETY. DISCONNECT EXISTING CONDUIT FROM PRESSURE TANK. REMOVE ALL EXISTING EXPOSED CONDUIT BACK TO STUB UP. SPLICE STUB UP FLUSH WITH SURFACE AND SEAL PENETRATION SIMILAR TO DETAILS ON DRAWING NO. [E–14] AND FINISH SURFACE TO MATCH EXISTING. EXISTING BURIED/UNDERGROUND CONDUIT SHALL REMAIN AND BE ABANDONED IN PLACE.
8. REFER TO GROUNDING REQUIREMENTS SHOWN ON DRAWING NO. [E–04].
9. REFER TO DUCT BANK SECTION CHART ON THIS DRAWINGS.

DUCT BANK SECTION 3

SECTION	CONDUIT TAGS
A	LS–C
	LP1–26
	TANK–G 8

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THE CITY OF AUSTIN
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ELECTRICAL
DUCTBANK PLAN

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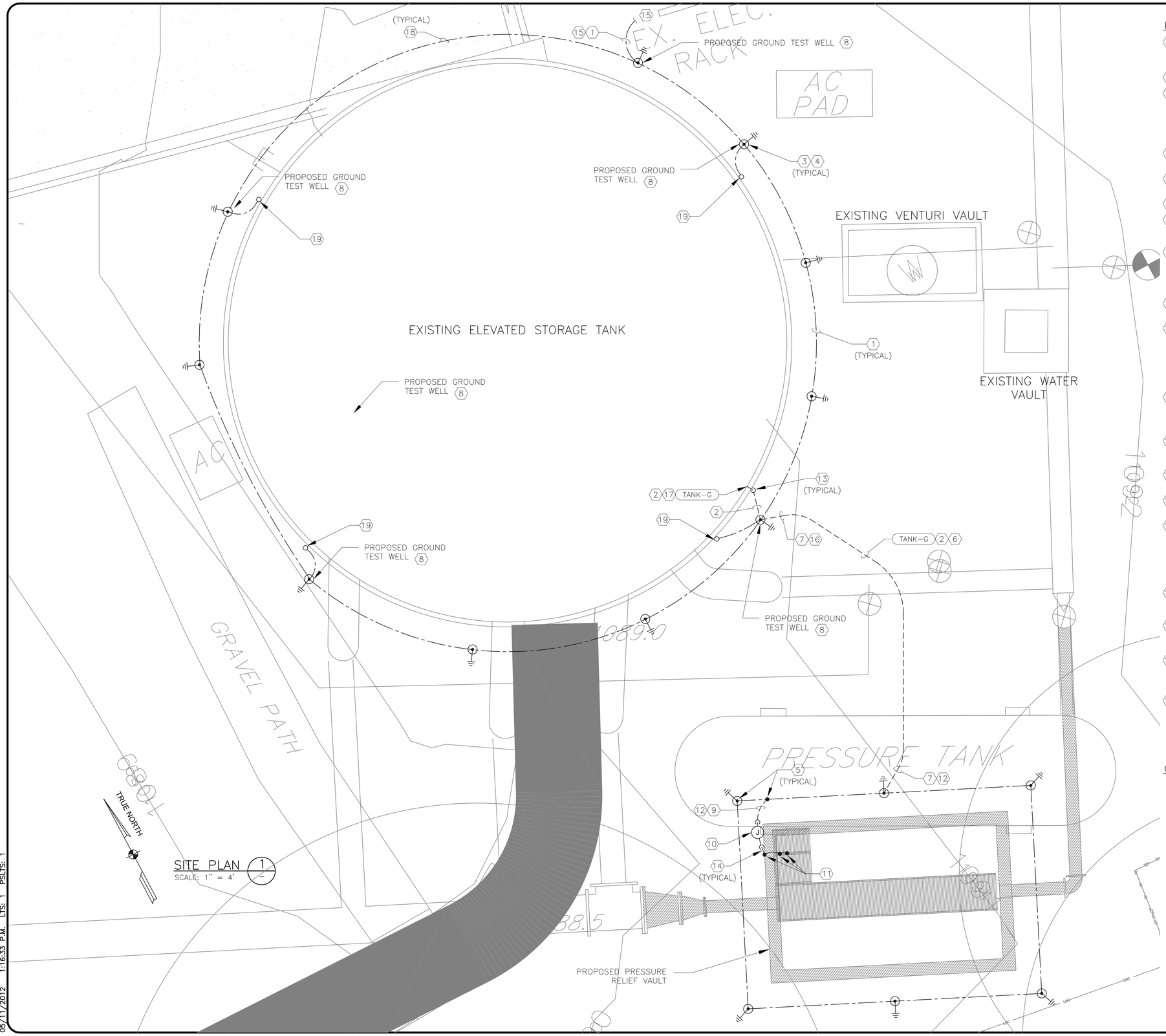

KEY NOTES:

1. 1 – 250kCMIL BARE GROUNDING CONDUCTOR DIRECT BURIED AT MINIMAL DEPTH OF 30 INCHES BELOW FINISHED SLAB/GRADE. TYPICAL BETWEEN ALL GROUNDING ELECTRODES AND TEST WELLS.
2. 1 – 250kCMIL INSULATED GROUNDING CONDUCTOR IN 1–1/2" CONDUIT.
3. FURNISH AND INSTALL GROUND ELECTRODE PER DETAILS ON DRAWING NO. [E–15] A MINIMUM OF 30" BELOW SLAB/GRADE AND A MINIMUM OF 24" AWAY FROM TANK AND VAULT FOUNDATIONS. ADJUST INSTALLATION ELEVATION AS REQUIRED TO AVOID CONFLICTS. COORDINATE GROUNDING ELECTRODE REQUIREMENTS AND LOCATIONS ALONG TANK WITH TANK MANUFACTURER/STRUCTURAL.
4. MAINTAIN A MINIMUM SPACING OF 10'–0" AND A MAXIMUM SPACING OF 15'–0" CENTER TO CENTER BETWEEN ALL GROUNDING ELECTRODES.
5. MAKE ALL CONNECTIONS TO GROUNDING ELECTRODES AND GROUNDING GRID BY MEANS OF EXOTHERMIC WELD UNLESS NOTED OTHERWISE.
6. INSULATED GROUND CONDUCTOR IN CONDUIT ROUTED WITH DUCT BANK.
7. INSULATED GROUNDING CONDUCTOR IN CONDUIT BREAKS OUT OF DUCT BANK FOR TERMINATION AT TEST WELL, GROUND ELECTRODE OR GROUND RING AS APPLICABLE.
8. FURNISH AND INSTALL TEST WELL PER DETAIL 4 ON DRAWING NO. [E–15]. COORDINATE LOCATION WITH EXISTING AND PROPOSED SITE CONDITIONS AND ADJUST INSTALLATION AS REQUIRED. CONDUCTORS ENTERING TEST WELL SHALL BE ATTACHED BY MECHANICAL REMOVABLE MEANS TO FACILITATE ISOLATION OF INDIVIDUAL GROUNDING SYSTEMS.
9. 1 – #1 INSULATED GROUNDING CONDUCTOR IN 1" CONDUIT DEDICATED TO BONDING VAULT HANDRAILS, LADDER AND ROOF STRUCTURE.
10. FURNISH GROUNDING JUNCTION BOX SIZED 12"H X 12"W X 6"D AT MINIMUM AND INSTALL SIMILAR TO DETAIL 6 ON DRAWING NO. [E–15], WITH EXCEPTION THAT POST BASES ARE NOT REQUIRED. SURFACE MOUNT VERTICAL CONDUIT CHANNELS TO SIDE OF VAULT USING EXPANSION ANCHORS. GROUND CONDUCTORS SHALL BE CONNECTED BY EXOTHERMIC WELD INSIDE BOX. TAG BOX "GROUNDING". ADJUST LOCATION OF JUNCTION BOX AND CONDUIT/WIRE STUB–UPS AS REQUIRED.
11. ROUTE GROUNDING CONDUIT/WIRE BETWEEN JUNCTION BOX AND HANDRAIL/GRAB BAR (NOT SHOWN). DAISY CHAIN AND BOND TOGETHER VAULT HANDRAIL/GRAB BAR, LADDER (NOT SHOWN) AND ROOF GRATING STRUCTURAL SUPPORTS (NOT SHOWN). REFER TO STRUCTURAL DRAWINGS.
12. ALTHOUGH REQUIRED OTHERWISE BY THE SPECIFICATIONS, DIRECT BURY CONDUIT WITHOUT CONCRETE ENCASEMENT. PVC CONDUIT SHALL EXTEND TO WITHIN 12" OF TERMINATION AT GROUND ELECTRODE/RING.
13. ALL CONDUITS SHALL TRANSITION TO RIGID METAL CONDUIT ABOVE GRADE PER TYPICAL DETAILS.
14. WHERE GROUNDING CONDUCTOR EXITS EXPOSED CONDUIT TO/FROM BOND, BUSH AND SEAL END OF CONDUIT WATERTIGHT.
15. FIELD VERIFY LOCATION OF EXISTING GROUNDING ELECTRODES/ CONDUCTORS NEAR ELECTRICAL SERVICE. ROUTE 1 – 250kCMIL BARE GROUNDING CONDUCTOR BETWEEN TEST WELL AND EXISTING GROUNDING AT ELECTRICAL SERVICE. USE EXOTHERMIC WELD TO CONNECT TO EXISTING GROUNDING SYSTEM. CONNECTION INSIDE TEST WELL SHALL BE BY REMOVABLE MECHANICAL MEANS. REFER TO DETAIL 4 ON DRAWING NO. [E–15].
16. ALTHOUGH REQUIRED OTHERWISE BY THE SPECIFICATIONS, DIRECT BURY CONDUIT WITHOUT CONCRETE ENCASEMENT. PVC CONDUIT SHALL EXTEND CONTINUOUS TO TURN UP INTO TEST WELL.
17. CONDUIT/WIRE PENETRATES WALL PER DETAIL 5 ON DRAWING NO. [E–12] ADJACENT TO OTHER PENETRATIONS SHOWN ON DRAWING NOS. [E–03] AND [E–05].
18. AFTER COMPLETION OF THE INSTALLATION OF THE GROUND GRID, THE CONTRACTOR SHALL REPAIR THE ROAD, ROAD CURBING, SIDEWALK, DRIVEWAY ETC. AS APPLICABLE, TO MATCH EXISTING TO THE SATISFACTION OF THE OWNER AT NO ADDITIONAL COST TO THE OWNER.
19. GROUND WIRE BY LIGHTNING PROTECTION CONTRACTOR SHALL CONNECT TO GROUNDING GRID IN FOUR LOCATIONS. COORDINATE WITH LIGHTNING PROTECTION CONTRACTOR FOR EXACT LOCATIONS.

GENERAL NOTES:

1. REFER TO SITE PLAN ON DRAWING NO. [E–03] FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
2. THE LOCATION AND SPACING OF GROUND ELECTRODES SHOWN IS APPROXIMATE. CONTRACTOR SHALL COORDINATE FINAL GROUND ELECTRODE LAYOUT WITH CIVIL/STRUCTURAL/MECHANICAL TO AVOID CONFLICTS. MINOR RELOCATIONS OF GROUNDING SYSTEM COMPONENTS SHOWN HERE MAY BE NECESSARY TO AVOID CONFLICTS. ARRANGE/INSTALL GROUND ELECTRODES AND CONDUCTORS AND MAINTAIN THE MINIMUM AND MAXIMUM SPACING BETWEEN ALL ELECTRODES AS NOTED. ELECTRODES SHALL BE INSTALLED 30" BELOW FINISHED SLAB/GRADE TO TOP OF ELECTRODE AT MINIMUM. INSTALL ELECTRODES AT INCREASED DEPTH AS REQUIRED TO AVOID CONFLICTS. TRANSITION TO THESE LOWER ELEVATIONS SHALL BE COORDINATED, FURNISHED, AND INSTALLED, AS REQUIRED, BY CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER. CONTRACTOR SHALL INSURE THAT THE GROUND ELECTRODE IS PLACED INTO UNDISTURBED/CLEAR SOIL REGARDLESS OF DEPTH FROM FINISHED SLAB.
3. CONTRACTOR SHALL COORDINATE INSTALLATION OF, AND PROTECTION OF, THE ENTIRE GROUNDING NETWORK (GROUND ELECTRODES AND ASSOCIATED GROUND CONDUCTORS IN AND AROUND THE STRUCTURE) WITH CIVIL/STRUCTURAL/MECHANICAL DURING ALL PHASES OF CONSTRUCTION.

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ENGINEERING AND ENVIRONMENTAL CONSULTANTS
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AUSTIN, TEXAS 78752
Texas Firm Registration Number F–2408

THE CITY OF AUSTIN
FOUR POINT ELEVATED RESERVOIR IMPROVEMENTS
ELECTRICAL
GROUNDING PLAN

NO.	ISSUE	BY	DATE	F&N JOB NO. AU116177
				DATE 7/29/2016
				DESIGNED HEI
				DRAWN HEI
				REVISED HEI
				CHECKED HEI

FILE NAME

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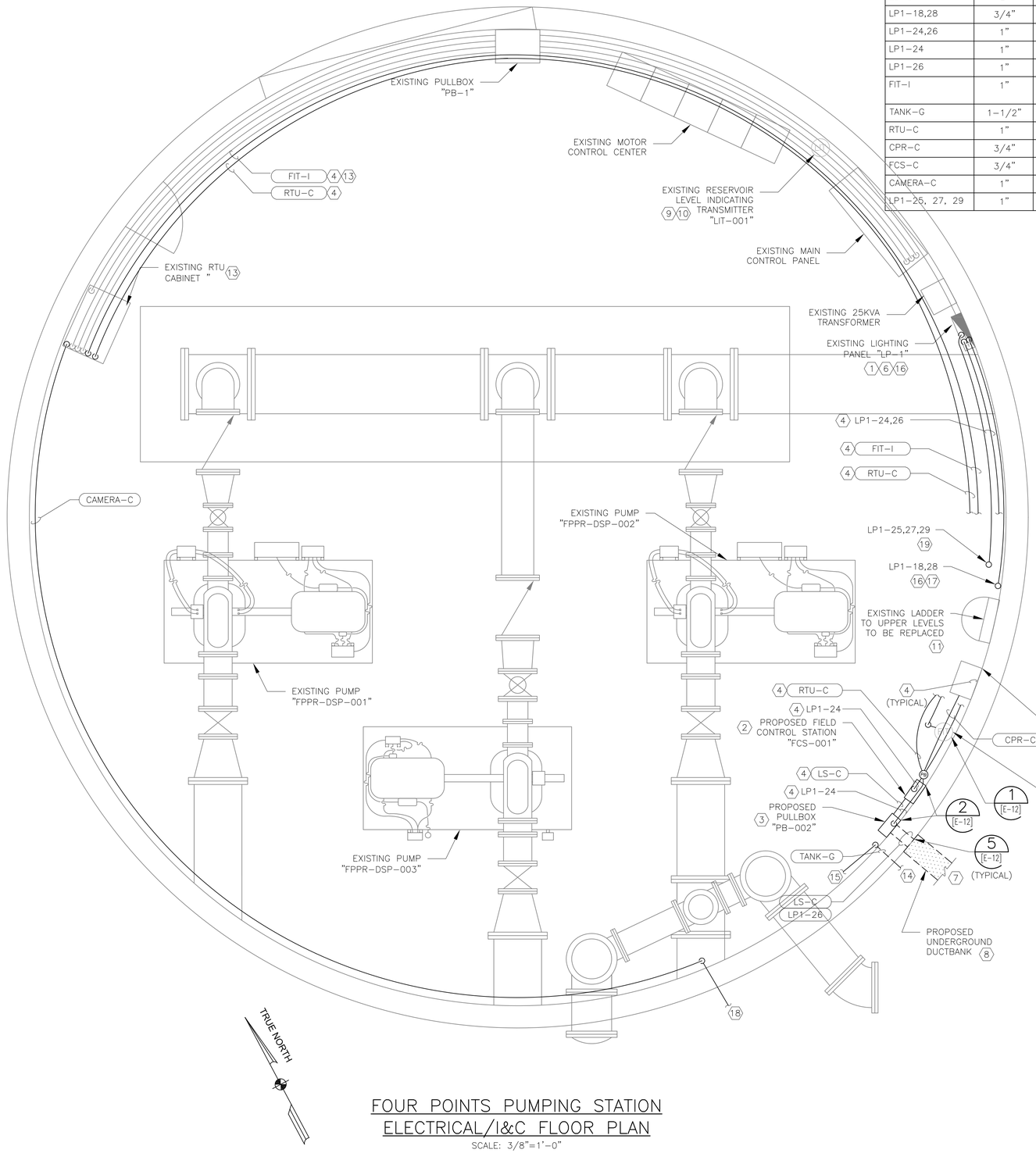

FOUR POINTS PUMPING STATION
ELECTRICAL/I&C FLOOR PLAN

SCALE: 3/8"=1'-0"

CONDUIT/WIRE SCHEDULE

CONDUIT TAG	SIZE	CABLE/WIRE DESCRIPTION	TO	FROM
LS-C	2"	4#12 (C), 4#12 (SP), 1#10 (G)	VALVE LIMIT SWITCHES	FCS-001
LP1-18,28	3/4"	2#10(P), 2#10(N), 2#10(G)	LIGHTS, RECEPTACLES	LP-1
LP1-24,26	1"	2#12(P), 2#12 (N), 2#12 (G)	PULLBOX	LP-1
LP1-24	1"	1#12(P), 1#12(N), 1#12(G)	FCS-001	LP-1
LP1-26	1"	1#12(P), 1#12(N), 1#12(G)	VAULT RECEPTACLES	LP-1
FIT-I	1"	1 #16 2-CONDUCTOR TWISTED PAIR SHIELDED CABLE (I)	FIT	RTU
TANK-G	1-1/2"	1 250 kCMIL (G)	GROUNDING SYSTEM	VAULT
RTU-C	1"	8#14(C), 1#12(G)	FCS-001	RTU
CPR-C	3/4"	5#14(C), 1#12(G)	FCS-001	CPR
FCS-C	3/4"	3#14(C), 1#12(G)	FCS-001	PB
CAMERA-C	1"	EMPTY	CAMERA	RTU
LP1-25, 27, 29	1"	3#10(P), 3#10(N), 3#10(G)	HEAT TRACING	LP-1

KEY NOTES:

12 AFTER DISCONNECTING THE EXISTING FLOW INDICATING TRANSMITTER FROM THE VENTURI VAULT, CONTRACTOR SHALL RELOCATE THE TRANSMITTER WITHIN THE EXISTING PUMP STATION. THE LOCATION OF THE EXISTING TRANSMITTER SHOWN IS APPROXIMATE. THE MECHANICAL TUBING BETWEEN THE EXISTING VENTURI AND THE EXISTING FLOW INDICATING TRANSMITTER SHALL BE PROVIDED BY MECHANICAL. COORDINATE WITH MECHANICAL CONTRACTOR TO DETERMINE THE EXACT LOCATION TO PLACE THE EXISTING FLOW INDICATING TRANSMITTER. MOUNT FLOW INDICATING TRANSMITTER PER DETAIL 1 ON DRAWING [E-12]. CONNECT THE PROPOSED INSTRUMENT WIRING AS PREVIOUSLY CONNECTED AND MAKE ALL FINAL TERMINATIONS. IF THE EXISTING FLOW INDICATING TRANSMITTER IS DAMAGED OR NOT FUNCTIONAL AFTER DISCONNECTING AND RELOCATION, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REPLACE THE EXISTING FLOW INDICATING TRANSMITTER "IN KIND" (SAME AS PREVIOUS) AT NO ADDITIONAL COST TO THE OWNER. CONTRACTOR SHALL PROVIDE ANY ADDITIONAL SUPPORT HARDWARE, EQUIPMENT, CONDUIT, WIRE, ETC. NECESSARY FOR A SECURE INSTALLATION AND TO ENSURE A FULLY FUNCTIONAL AND OPERATIONAL SYSTEM TO THE SATISFACTION OF THE OWNER AND AT NO ADDITIONAL COST TO THE OWNER.

13 CONTRACTOR SHALL WIRE THE PROPOSED INSTRUMENT WIRING FROM THE EXISTING PLC IN THE EXISTING RTU CABINET TO THE EXISTING/RELOCATED FLOW INDICATING TRANSMITTER AND MAKE ALL FINAL TERMINATIONS. CONTRACTOR SHALL WIRE THE PROPOSED INSTRUMENT WIRING TO THE SAME POINTS ON THE EXISTING PLC AS PREVIOUSLY CONNECTED PRIOR TO DEMOLITION.

14 GROUND CONDUIT/WIRE CONTINUES TO TEST WELL OUTSIDE. REFER TO DRAWING NO. [E-14] FOR CONTINUATION.

15 GROUND CONDUIT/WIRE CONTINUES TO EXISTING GROUND WIRE LOCATED ON AND ATTACHED TO PUMP STATION WALL. CONNECT NEW GROUND WIRE TO EXISTING GROUND WIRE UTILIZING EXOTHERMIC MEANS.

16 FIELD VERIFY LOCATION OF EXISTING TANK/PEDESTAL LIGHTING CONDUIT ALONG LADDER. DEMOLISH CONDUIT/WIRE IN ITS ENTIRETY. CUT CONDUIT FLUSH TO FLOOR AND GROUT PER DETAILS ON DRAWING NO. [E-14]. CIRCUIT LP1-18 APPEARS TO BE DEDICATED TO TANK PEDESTAL LADDER LIGHTS. FIELD VERIFY. CIRCUIT LP1-18 SHALL BE REUSED FOR PROPOSED LIGHTING. IF ANY OTHER LIGHTS OR LOADS ARE FOUND TO BE CONNECTED TO THIS CIRCUIT, THAT PORTION OF THE CONDUIT/WIRE SHALL REMAIN, AND THE CONTRACTOR SHALL FURNISH AND INSTALL A NEW 1P-20A BREAKER TO BE DEDICATED TO THE PROPOSED TANK/PEDESTAL LIGHTING.

17 PROPOSED LIGHTING AND RECEPTACLE CONDUIT/WIRE TURNS UP ADJACENT TO LADDER AND PENETRATES HATCH AT CEILING. COORDINATE FINAL LOCATION WITH ALL OTHER EXISTING/PROPOSED CONDUITS AND WITH MODIFICATIONS TO LADDER SYSTEM. REFER TO DRAWING NO. [E-06] FOR CONTINUATION.

18 PROVIDE EMPTY CONDUIT FOR SECURITY CAMERA. CAMERA AND WIRING TO BE INSTALLED BY OTHERS. COORDINATE WITH THE OWNER ON EXACT LOCATION AND ELEVATION OF WALL PENETRATION.

19 FIELD VERIFY LOCATION OF THE THREE SAMPLE LINES REQUIRING HEAT TRACING. EACH SAMPLE LINE TO BE HEAT TRACED SHALL BE POWERED BY ONE OF THE THREE CIRCUITS. PROVIDE HEAT TRACING TO THE ENTIRE RUN OF EACH SAMPLE LINE THAT IS IN THE PORTION OF THE PIPE RUN THAT IS TO BE INSULATED. CIRCUIT NO. 25 SHALL ALSO CONTINUE TO THE PORTION OF THE EXPOSED FIT SENSING LINES THAT EXTEND OUTSIDE OF THE PUMP ROOM. PROVIDE HEAT TRACING ON THE FIT SENSING LINES AS REQUIRED BY MECHANICAL.

KEY NOTES:

1 THE CONTRACTOR SHALL INSTALL SIX (S) 1P-20A CIRCUIT BREAKERS IN THE PANELBOARD SPACES NUMBERED 24, 25, 26, 27, 28 AND 29. THE PROPOSED CIRCUIT BREAKERS SHALL BE CUTLER-HAMMER TYPE BAB. CONTRACTOR SHALL UPDATE CIRCUIT DIRECTORY SCHEDULE WITH A NEW TYPEWRITTEN DIRECTORY INSIDE THE PANEL.

2 CONTRACTOR SHALL FURNISH AND INSTALL PROPOSED FIELD CONTROL STATION "FCS-001" AND MAKE ALL FINAL TERMINATIONS. MOUNT FIELD CONTROL STATION PER DETAIL NO. 2 ON DRAWING [E-12]. IN ADDITION REFER TO I&C DETAILS ON DRAWING NO. [E-09].

3 CONTRACTOR SHALL FURNISH AND INSTALL PROPOSED PULLBOX AND MOUNT ON WALL PER DETAIL NO. 2 ON DRAWING NO. [E-12]. CONTRACTOR SHALL SIZE ALL PULL/JUNCTION BOXES PER, AND IN ACCORDANCE WITH, THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (N.E.C.).

4 CONTRACTOR SHALL FURNISH AND INSTALL CONDUIT/WIRE AND SUPPORT THE CONDUIT/WIRE PER DETAILS ON DRAWING NO. [E-13].

5 THE LOCATION OF THE EXISTING CATHODIC PROTECTION RECTIFIER IS APPROXIMATE. CONTRACTOR SHALL FIELD VERIFY PRIOR TO COMMENCING DEMOLITION OR RENOVATION ACTIVITIES. THE EXISTING CATHODIC PROTECTION RECTIFIER AND ASSOCIATED ANODES LOCATED WITHIN WATER STORAGE TANK SHALL BE DISCONNECTED AND REMOVED IN THEIR ENTIRETY. DISCONNECT AND REMOVE THE EXISTING CONDUIT/WIRE ROUTING BETWEEN THE CATHODIC PROTECTION RECTIFIER TO THE EXISTING ANODES IN THEIR ENTIRETY. DISCONNECT THE EXISTING CONTROL AND POWER WIRING FROM THE CATHODIC PROTECTION SYSTEM. THE EXISTING POWER CONDUIT/WIRE THAT ROUTES FROM THE EXISTING PANELBOARD TO THE CATHODIC PROTECTION RECTIFIER SHALL REMAIN AND BE REUSED DURING RENOVATION ACTIVITIES. AFTER REMOVAL OF EXISTING CATHODIC PROTECTION SYSTEM, CONTRACTOR SHALL FURNISH AND INSTALL THE PROPOSED CATHODIC PROTECTION RECTIFIER AND PROPOSED ANODES PER SPECIFICATIONS AND MAKE ALL FINAL TERMINATIONS. CONTRACTOR SHALL MOUNT CATHODIC PROTECTION RECTIFIER AS THE PREVIOUS RECTIFIER WAS MOUNTED AND SIMILAR TO DETAIL NO. 2 ON DRAWING NO. [E-12]. FURNISH AND INSTALL CONDUIT AND WIRE TO/FROM THE PROPOSED CATHODIC PROTECTION SYSTEM AND THE PROPOSED ANODES LOCATED IN THE WATER STORAGE TANK. RECONNECT THE EXISTING CONTROLS AND POWER CONDUIT AND WIRING TO THE PROPOSED CATHODIC PROTECTION RECTIFIER. IF THE EXISTING CONDUIT OR WIRE IS DAMAGED OR NOT FUNCTIONAL, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE AND INSTALL ADDITIONAL CONDUIT AND WIRE AS NECESSARY AND MAKE ALL FINAL TERMINATIONS TO REPLACE THE EXISTING/DAMAGED AT NO ADDITIONAL COST TO THE OWNER. IN ADDITION, CONTRACTOR SHALL PROVIDE ANY ADDITIONAL SUPPORTS, HARDWARE, ETC. NECESSARY FOR A SECURE INSTALLATION ENSURING THAT THE PROPOSED CATHODIC PROTECTION RECTIFIER IS FULLY FUNCTIONAL AND OPERATIONAL TO THE SATISFACTION OF THE OWNER AT NO ADDITIONAL COST TO THE OWNER.

6 CONTRACTOR SHALL MODIFY EXISTING LIGHTING PANEL "LP1" AND MAKE ALL FINAL TERMINATIONS. PROVIDE THE NECESSARY MEANS FOR CONTINUOUS ELECTRICAL SERVICE TO THE LIGHTING PANEL BRANCH CIRCUITING LOADS DURING ALL PHASES OF CONSTRUCTION TO FACILITATE CONTINUOUS PUMP STATION OPERATION.

7 UNDERGROUND DUCT BANK CONTINUES. REFER TO SITE PLAN DRAWING NO. [E-03] FOR CONTINUATION.

8 APPROXIMATE LOCATION OF PROPOSED UNDERGROUND DUCT BANK. SPACE AND ENCASE IN REINFORCED CONCRETE PER THE DETAILS ON DRAWING NO. [E-11]. COORDINATE EXACT LOCATION/ROUTES OF DUCT BANK WITH STRUCTURAL, MECHANICAL, HVAC, ETC. COORDINATE EXACT LOCATIONS OF STUB-UPS WITH EQUIPMENT MANUFACTURERS AND WITH STRUCTURAL, MECHANICAL, HVAC, ETC. PRIOR TO INSTALLING UNDERGROUND CONDUIT AND WIRE.

9 CONTRACTOR SHALL FIELD VERIFY LOCATION OF EXISTING LEVEL INDICATING TRANSMITTER PRIOR TO COMMENCING DEMOLITION OR RENOVATION ACTIVITIES. CONTRACTOR SHALL DISCONNECT AND REMOVE EXISTING LEVEL INDICATING TRANSMITTER "LIT-001" LOCATED ON WALL OF EXISTING STORAGE TANK. CONTRACTOR SHALL DISCONNECT ALL EXISTING CONDUIT AND WIRE CONNECTED TO EXISTING LEVEL INDICATING TRANSMITTER. THE EXISTING CONDUIT AND WIRE SHALL BE REUSED TO DURING RENOVATION ACTIVITIES.

10 CONTRACTOR SHALL FURNISH AND INSTALL A NEW LEVEL INDICATING TRANSMITTER REPLACING THE EXISTING TRANSMITTER "IN KIND" PER SPECIFICATIONS AND SHALL MAKE ALL FINAL TERMINATIONS. MOUNT PROPOSED LEVEL INDICATING TRANSMITTER SIMILAR TO EXISTING AND PER SPECIFICATIONS. CONTRACTOR SHALL RECONNECT EXISTING POWER, INSTRUMENTATION AND CONTROL CONDUITS AND WIRING AND CONNECT TO PROPOSED TRANSMITTER AS THE EXISTING WAS CONNECTED. IF THE EXISTING CONDUIT OR WIRE IS DAMAGED OR NOT FUNCTIONAL, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE AND INSTALL ADDITIONAL CONDUIT AND WIRE AS NECESSARY AND MAKE ALL FINAL TERMINATIONS TO REPLACE THE EXISTING/DAMAGED AT NO ADDITIONAL COST TO THE OWNER. IN ADDITION, CONTRACTOR SHALL PROVIDE ANY ADDITIONAL SUPPORTS, HARDWARE, ETC. NECESSARY FOR A SECURE INSTALLATION ENSURING THAT THE PROPOSED TRANSMITTER IS FULLY FUNCTIONAL AND OPERATIONAL TO THE SATISFACTION OF THE OWNER AT NO ADDITIONAL COST TO THE OWNER.

11 LOCATION OF THE EXISTING LADDER SYSTEM SHOWN IS APPROXIMATE. REFER TO STRUCTURAL DRAWINGS FOR MODIFICATIONS TO LADDER. CONTRACTOR SHALL FIELD VERIFY PRIOR TO COMMENCING DEMOLITION AND RENOVATION ACTIVITIES.

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THE CITY OF AUSTIN
FOUR POINT ELEVATED RESERVOIR IMPROVEMENTS
ELECTRICAL AND I&C
POWER AND I&C PLAN

F&N JOB NO. AU116177
DATE 7/29/2016
DESIGNED HEI
DRAWN HEI
REVISED HEI
CHECKED HEI

NO.	ISSUE	BY	DATE

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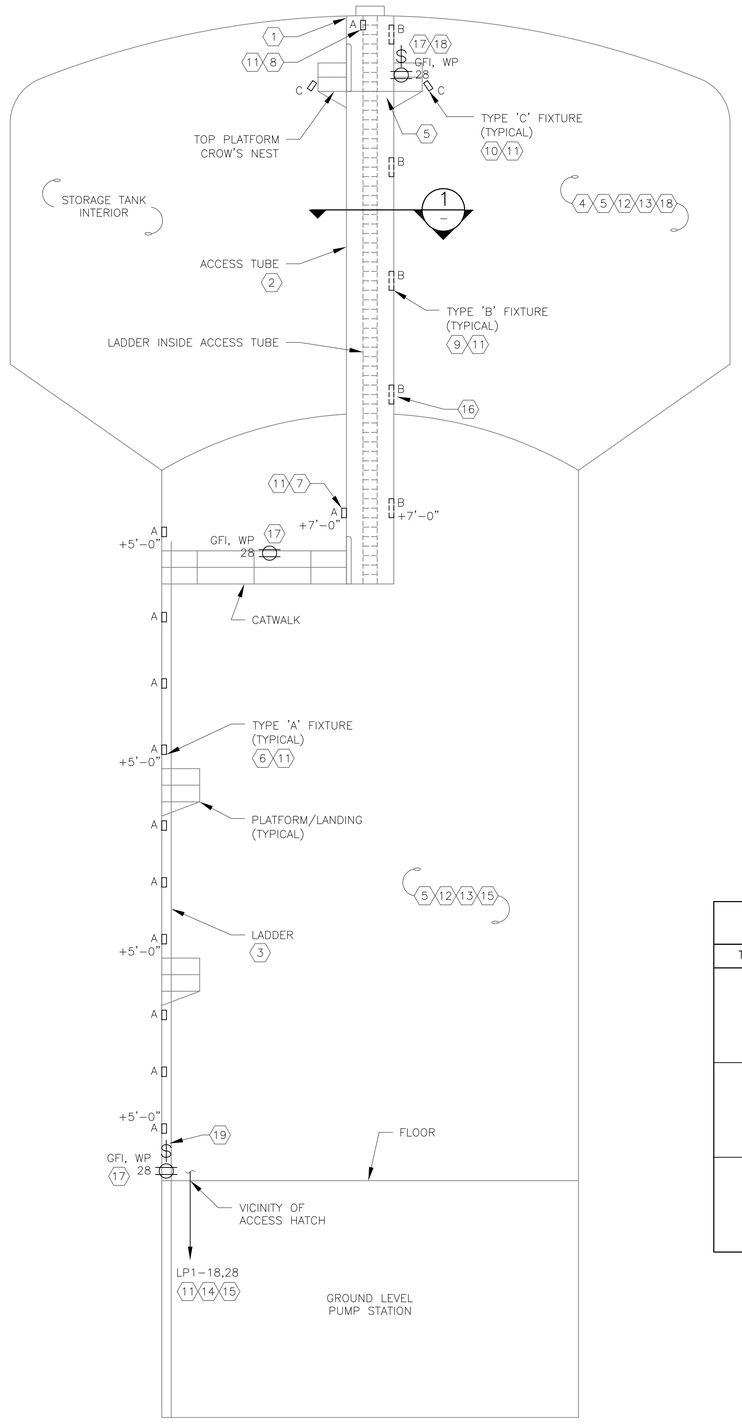


ELEVATED STORAGE TANK
SECTIONAL VIEW DIAGRAM (A)
SCALE: N.T.S.

KEY NOTES:

1. DISCONNECT AND REMOVE EXISTING LIGHT FIXTURE LOCATED INSIDE TANK ON OUTSIDE OF ACCESS TUBE AT EXISTING PLATFORM. EXISTING CONDUIT APPEARS TO PENETRATE INTO ACCESS TUBE AND CONTINUES TO NEXT FIXTURE INSIDE. FIELD VERIFY. DISCONNECT AND REMOVE ALL ASSOCIATED CONDUIT/WIRE AND ALL RELATED SUPPORTS IN THEIR ENTIRETY. IF REMAINING PENETRATION HOLE CANNOT BE REUSED WITH PROPOSED FIXTURE, PATCH AND SEAL WATER TIGHT. COORDINATE WITH STRUCTURAL.

2. DISCONNECT AND REMOVE 4 EXISTING LIGHT FIXTURES ALONG LADDER INSIDE ACCESS TUBE. A SINGLE CONDUIT MOUNTED TO LADDER APPEARS TO ROUTE BETWEEN EACH FIXTURE AND CONTINUES ALONG CATWALK HANDRAIL TO OUTER WALL. FIELD VERIFY. DISCONNECT AND REMOVE ALL ASSOCIATED CONDUIT/WIRE AND ALL RELATED SUPPORTS IN THEIR ENTIRETY.

3. DISCONNECT AND REMOVE 6 EXISTING LIGHT FIXTURES ALONG WALL LADDERS BETWEEN FLOOR AND CATWALK. A SINGLE CONDUIT APPEARS TO ROUTE BETWEEN EACH FIXTURE AND CONTINUES ALONG WALL TO PENETRATION OF EXISTING ACCESS HATCH TO GROUND FLOOR LEVEL. FIELD VERIFY. DISCONNECT AND REMOVE ALL ASSOCIATED CONDUIT/WIRE AND ALL RELATED SUPPORTS IN THEIR ENTIRETY.

4. EXISTING CATHODIC PROTECTION SYSTEM INSIDE TANK NOT SHOWN FOR CLARITY. IT APPEARS THAT ANODES AND ASSOCIATED WIRING ARE SUSPENDED FROM ROOF OF TANK AT 7 LOCATIONS, ACCESSIBLE BY HAND HOLES IN ROOF. FIELD VERIFY. DISCONNECT AND REMOVE ALL ANODES AND ASSOCIATED WIRING AND SUPPORTS INSIDE STORAGE TANK IN THEIR ENTIRETY. CAP EXISTING HAND HOLES AS REQUIRED PER STRUCTURAL REQUIREMENTS.

5. EXISTING CATHODIC PROTECTION SYSTEM WIRING APPEARS TO PENETRATE ACCESS TUBE NEAR TOP PLATFORM INSIDE TANK. WIRING CONTINUES IN CONDUIT MOUNTED TO LADDER INSIDE ACCESS TUBE. CONDUIT CONTINUES DOWN ACCESS TUBE ALONG LADDER, ALONG CATWALK HANDRAIL TO OUTER WALL, DOWN LADDERS ALONG WALL TO PENETRATION OF EXISTING ACCESS HATCH, AND DOWN WALL TO TERMINATION AT EXISTING RECTIFIER CONTROL PANEL. FIELD VERIFY. DISCONNECT AND REMOVE ALL CONDUIT/WIRE AND ALL RELATED SUPPORTS IN THEIR ENTIRETY.

6. SURFACE MOUNT TYPE 'A' FIXTURES TO WALL ADJACENT TO LADDERS PER DETAIL 3 ON DRAWING NO. [E-13] AND PER STRUCTURAL REQUIREMENTS. ONE TYPE 'A' FIXTURE SHALL BE LOCATED AT +5'-0" ABOVE THE FLOOR AND ONE AT 5'-0" ABOVE EACH PLATFORM/LANDING/CATWALK. REMAINING FIXTURES SHALL BE EVENLY SPACED ALONG WALL. COORDINATE FINAL POSITION WITH TANK CONTRACTOR AND THE OWNER.

7. SURFACE MOUNT TYPE 'A' FIXTURE TO OUTSIDE OF ACCESS TUBE ABOVE ENTRY DOOR, +7'-0" ABOVE CATWALK, PER DETAIL 3 ON DRAWING NO. [E-13] AND PER STRUCTURAL REQUIREMENTS.

8. SURFACE MOUNT TYPE 'A' FIXTURE TO OUTSIDE OF ACCESS TUBE BETWEEN DOOR AND PROPOSED LADDER ON OUTSIDE OF TUBE (NOT SHOWN FOR CLARITY) PER DETAIL 3 ON DRAWING NO. [E-13] AND PER STRUCTURAL REQUIREMENTS. MOUNT AT AN ELEVATION AS HIGH AS POSSIBLE ABOVE TOP PLATFORM.

KEY NOTES:

9. SURFACE MOUNT TYPE 'B' FIXTURES TO INTERIOR WALL OF ACCESS TUBE PER DETAIL 4 ON DRAWING NO. [E-13] AND PER STRUCTURAL REQUIREMENTS. FIXTURES SHALL BE ORIENTED VERTICALLY. FIRST FIXTURE AT BOTTOM OF TUBE SHALL BE LOCATED AT +7'-0" ABOVE FLOOR. REMAINING FIXTURES SHALL BE EVENLY SPACED ALONG LENGTH OF TUBE. ADJUST FIXTURE SPACING AS REQUIRED TO AVOID CONFLICTS WITH LANDINGS (NOT SHOWN) INSIDE TUBE. FIELD VERIFY LANDING LOCATIONS. FIXTURES SHALL BE LOCATED 90-DEGREES FROM LADDER IN ACCESS TUBE.

10. MOUNT TYPE 'C' FIXTURES TO BOTTOM OF PLATFORM STRUCTURE ON OUTSIDE OF HANDRAIL PER DETAIL 5 ON DRAWING NO. [E-13] AND PER STRUCTURAL REQUIREMENTS. FIXTURES ARE ANGLED UPWARD ABOVE HORIZONTAL TOWARD ROOF. COORDINATE FINAL ORIENTATION WITH THE OWNER TO OPTIMIZE ILLUMINATION OF TANK INTERIOR AND MINIMIZE GLARE FROM PLATFORM. FOUR FIXTURES EVENLY SPACED AROUND CIRCUMFERENCE OF PLATFORM ARE REQUIRED. ONLY TWO FIXTURES SHOWN FOR CLARITY.

11. ALL PROPOSED FIXTURES SHALL BE WIRED TO EXISTING LIGHTING CIRCUIT BREAKER LP1-18. FIELD VERIFY CIRCUIT BREAKER NUMBER, SIZE, CONDITION, ETC. FURNISH AND INSTALL NEW CIRCUIT BREAKER TO MATCH EXISTING IF REQUIRED AT NO ADDITIONAL COST TO THE OWNER. FURNISH AND INSTALL CONDUITS TO INTERCONNECT PROPOSED FIXTURES AND PANELBOARD. REFER TO DRAWING NO. [E-05] FOR CONTINUATION AND OTHER REQUIREMENTS. ALL CONDUITS SHALL BE A MINIMUM OF 12-INCHES FROM THE LADDER.

12. PROPOSED CATHODIC PROTECTION SYSTEM NOT SHOWN. AFTER DEMOLITION OF EXISTING SYSTEM, FURNISH AND INSTALL PROPOSED CATHODIC PROTECTION PACKAGED SYSTEM INCLUDING RECTIFIER, ANODES, ELECTRODES, CONDUITS, WIRING, ETC. AND ALL RELATED SUPPORTS. ALL COMPONENTS, ASSOCIATED CONDUIT/WIRE, SUPPORTS, ETC. REQUIRED FOR A COMPLETE AND FUNCTIONAL SYSTEM THAT ARE NOT FURNISHED AND INSTALLED BY THE PACKAGED SYSTEM MANUFACTURER SHALL BE FURNISHED AND INSTALLED BY CONTRACTOR, ENSURING THAT THE PROPOSED CATHODIC PROTECTION SYSTEM IS FULLY FUNCTIONAL AND OPERATIONAL TO THE SATISFACTION OF THE OWNER AT NO ADDITIONAL COST TO THE OWNER. MAKE ALL FINAL CONNECTIONS. COORDINATE WITH CATHODIC PROTECTION SYSTEM MANUFACTURER. REFER TO FLOOR PLAN ON DRAWING NO. [E-05] AND CONTROL PANEL FIELD INTERCONNECT WIRING SCHEMATIC ON DRAWING NO. [E-10] FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

13. PROPOSED CONDUIT/WIRE ASSOCIATED WITH CATHODIC PROTECTION SYSTEM NOT SHOWN. PACKAGED SYSTEM MANUFACTURER AND CONTRACTOR SHALL SIZE, FURNISH AND INSTALL ALL REQUIRED CONDUIT/WIRE AND ALL RELATED SUPPORTS. COORDINATE WIRING REQUIREMENTS WITH MANUFACTURER. FIELD ROUTE AND INSTALL PER DRAWINGS, SPECIFICATIONS, AND MANUFACTURER'S RECOMMENDATIONS AND TO THE SATISFACTION OF THE OWNER AT NO ADDITIONAL COST TO THE OWNER. COORDINATE ROUTE OF PROPOSED CONDUIT/WIRE, VERIFYING ALL POINTS OF CONNECTION PRIOR TO COMMENCING INSTALLATION. ROUTE CONDUIT/WIRE WITH OTHER LIGHTING, RECEPTACLE AND GROUNDING SYSTEM CONDUITS WHERE POSSIBLE. COORDINATE FINAL ROUTE WITH THE OWNER.

KEY NOTES:

14. POINT-TO-POINT RACEWAY ROUTING NOT SHOWN FOR CLARITY. LIGHTING AND RECEPTACLE WIRING SHALL BE COMBINED IN SAME CONDUIT WHERE POSSIBLE.

15. LIGHTING, RECEPTACLE AND GROUNDING CONDUITS SHALL BE FIELD ROUTED THROUGH ACCESS TUBE, ALONG CATWALK HANDRAIL, AND ALONG WALL ADJACENT TO LADDERS AS APPLICABLE. CONDUITS SHALL NOT BE MOUNTED TO LADDERS. COORDINATE REQUIRED MINIMUM CLEARANCE FROM LADDERS WITH STRUCTURAL MODIFICATIONS AND THE OWNER. INSTALL PER DETAILS ON DRAWING NO. [E-13]. PENETRATIONS OF TANK STRUCTURE PER DETAILS, SPECIFICATIONS, STRUCTURAL AND THE OWNER. COORDINATE WITH STRUCTURAL AND THE OWNER.

16. CLOSELY COORDINATE EXACT LOCATION OF THIS FIXTURE WITH THE PROPOSED PRESSURE TAP TO BE INSTALLED IN THIS AREA. REFER TO STRUCTURAL DRAWINGS FOR DETAILS.

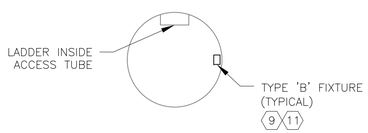
17. RECEPTACLE WITH WHILE IN USE COVER. INSTALL AT +36" ON EXISTING/PROPOSED HANDRAIL OR WALL AS APPLICABLE. INSTALL SIMILAR TO DETAIL 4 ON DRAWING NO. [E-12]. CLAMP SUPPORT CHANNELS TO HANDRAILS. WIRE TO CIRCUIT LP1-28. COORDINATE FINAL LOCATION WITH THE OWNER.

18. SWITCH DEDICATED TO SWITCHING OF TYPE 'C' FIXTURES INSIDE TANK. INSTALL AT +42" ON PROPOSED HANDRAIL ADJACENT TO PROPOSED RECEPTACLE. COORDINATE FINAL LOCATION WITH THE OWNER.

19. SWITCH DEDICATED TO SWITCHING ALL FIXTURES SHOWN ON THIS DRAWING. INSTALL AT +48" SIMILAR TO DETAIL 4 ON DRAWING NO. [E-12].

LIGHTING FIXTURE SCHEDULE

TYPE	LAMP	MANUF./CATALOG NO.	DESCRIPTION
A	LED 750 LUMENS	HUBBELL #VWGL-1 OR APPROVED EQUAL	WALL MOUNT, VAPOR-TIGHT, LED LUMINAIRE. DIE CAST ALUMINUM HOUSING AND GUARD WITH CORROSION RESISTANT FINISH. FURNISH WITH INTEGRAL WALL MOUNT JUNCTION BOX. FROSTED GLASS GLOBE. DRIVER SUITABLE FOR 120V-277V. SUITABLE FOR USE IN AN AMBIENT TEMPERATURE RANGE FROM -20°C TO +40°C. EXTERNAL HARDWARE SHALL BE OF #316 STAINLESS STEEL. FIXTURE SHALL BE UL LISTED FOR WET LOCATIONS.
B	LED 2000 LUMENS	LITHONIA #DMW2 L24 2000LM PFL WD MVOLT GZ1 40K 80CRI OR APPROVED EQUAL	WALL/SURFACE MOUNT, 24", VAPOR-TIGHT, LED LUMINAIRE. ONE-PIECE MOLDED FIBERGLASS HOUSING, FULLY GASKETED AND ENCLOSED. CORROSION RESISTANT FINISH. FROSTED POLYCARBONATE LENS WITH WIDE OPTICAL DISTRIBUTION. DRIVER SUITABLE FOR 120V-277V. SUITABLE FOR USE IN AN AMBIENT TEMPERATURE RANGE FROM -20°C TO +40°C. EXTERNAL HARDWARE SHALL BE OF #316 STAINLESS STEEL. FIXTURE SHALL BE UL LISTED FOR WET LOCATIONS.
C	LED 12000 LUMENS	HUBBELL #FLL-Y-140L4K-U WITH FLL-VISOR-DB OR APPROVED EQUAL	FLOOD, VAPOR-TIGHT, LED LUMINAIRE. DIE CAST ALUMINUM HOUSING WITH CORROSION RESISTANT FINISH. ADJUSTABLE KNUCKLE/YOKE FOR AIMING. NEMA 6X6 OR HIGHER WIDE FLOOD DISTRIBUTION. FURNISH WITH TOP VISOR. DRIVER SUITABLE FOR 120V-277V. SUITABLE FOR USE IN AN AMBIENT TEMPERATURE RANGE FROM -20°C TO +40°C. EXTERNAL HARDWARE SHALL BE OF #316 STAINLESS STEEL. FIXTURE SHALL BE UL LISTED FOR WET LOCATIONS.



ACCESS TUBE PLAN (1)
SCALE: N.T.S.

GENERAL NOTES:

1. TANK STRUCTURE, LADDERS, PLATFORMS, ETC. SHOWN FOR DIAGRAMMATIC PURPOSES ONLY. NOT ALL TANK ACCESSORIES HAVE BEEN SHOWN. SOME ITEMS ARE SHOWN ROTATED FOR CLARITY. FIELD VERIFY ACTUAL DIMENSIONS/LOCATIONS. REFER TO MECHANICAL/STRUCTURAL DRAWINGS FOR EXACT LOCATIONS OF PROPOSED MECHANICAL/STRUCTURAL ITEMS.
2. ALL ELECTRICAL, LIGHTING AND AUXILIARY EQUIPMENT AND CONDUITS SHOWN ARE PROPOSED UNLESS NOTED OTHERWISE. EXISTING EQUIPMENT, CONDUITS, ETC. NOT SHOWN.
3. THE LOCATIONS AND SIZES OF EQUIPMENT SHOWN ARE APPROXIMATE. THE CONTRACTOR SHALL FIELD VERIFY CONDITIONS PRIOR TO COMMENCING CONSTRUCTION.
4. FIXTURE MOUNTING HEIGHTS ARE REFERENCED FROM FLOOR/PLATFORM/CATWALK TO BOTTOM OF FIXTURE.
5. COORDINATE INSTALLATION OF ALL FIXTURES AND ALL CONDUIT/WIRE WITH TANK CONTRACTOR, STRUCTURAL AND THE OWNER. FURNISH FIXTURES WITH ALL REQUIRED OPTIONS/ACCESSORIES, MOUNTING HARDWARE, ETC. AS REQUIRED FOR A SAFE AND SECURE INSTALLATION. MOUNT CONDUITS PER DETAILS ON DRAWING NO. [E-13], MODIFIED AS REQUIRED TO SUIT CONDITIONS. FURNISH AND INSTALL CONDUIT MOUNTING PLATES, ALL RELATED HARDWARE AND ANY OTHER FABRICATIONS AS REQUIRED FOR A SAFE AND SECURE INSTALLATION.
6. TANK STRUCTURE, LADDERS, PLATFORMS, ETC. ARE SHOWN AS EXISTING. REFER TO MECHANICAL/STRUCTURAL FOR REQUIRED MODIFICATIONS TO EXISTING TANK EQUIPMENT AND COORDINATE ALL PROPOSED ELECTRICAL MODIFICATIONS.
7. COORDINATE FINAL LOCATION OF ALL FIXTURES WITH THE OWNER PRIOR TO INSTALLATION.

Harutunian Engineering, Inc.
Texas Registered Engineering Firm F-2408
STATE OF TEXAS · K. A. HARUTUNIAN · 59181 · REGISTERED · PROFESSIONAL ENGINEER
5/9/2016

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THE CITY OF AUSTIN
FOUR POINT ELEVATED RESERVOIR IMPROVEMENTS
ELECTRICAL
ELEVATED STORAGE TANK LIGHTING

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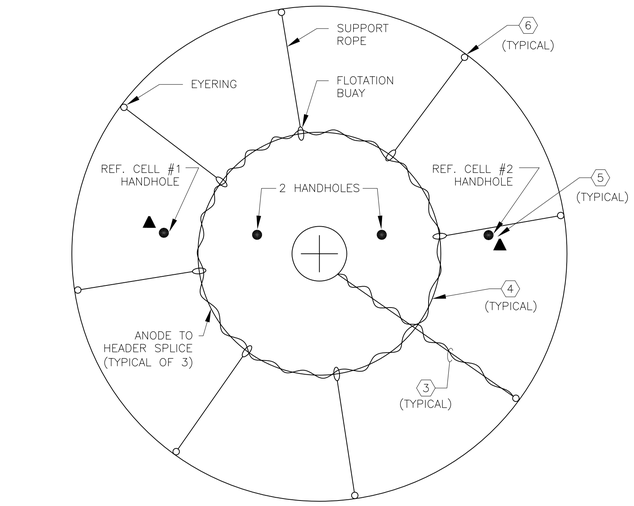

PLAN

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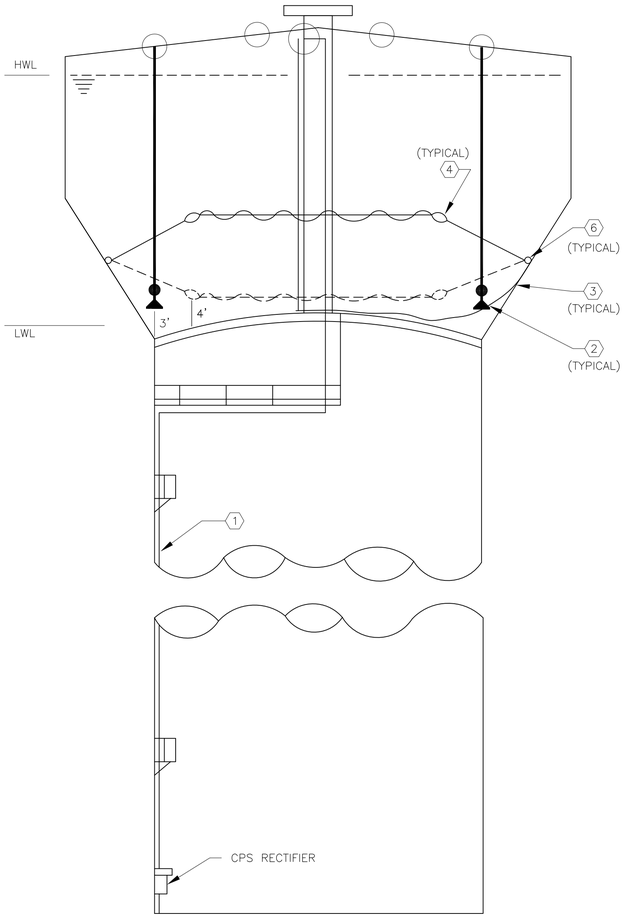

ELEVATION

N.T.S.

GENERAL NOTES:

1. THIS DRAWING DEPICTS THE MINIMUM GUIDELINE REQUIREMENTS FOR THE CATHODIC PROTECTION SYSTEM THAT SHALL BE SUPPLEMENTED BY THE ADDITIONAL FEATURES, ANODES, REFERENCE CELLS, ETC., INSTALLED COMPLETE WITH ALL NECESSARY HARDWARE AS RECOMMENDED BY THE CPS MANUFACTURER. REFER TO AND COMPLY WITH THE REQUIREMENTS OF SPECIFICATION SECTION 16642. ALL ELECTRICAL SYSTEM RACEWAYS SHALL BE FURNISHED AND INSTALLED PER THE REQUIREMENTS OF DIVISION 16.

KEY NOTES:

1. 3/4" CONDUIT CONTAINING (2)–10# AND (1)–#18–3C SHIELDED WIRES.
2. REFERENCE CELLS SHALL BE INSTALLED FROM HANDHOLES CUT WITHIN THE ROOF, 180° APART. CELLS TO BE INSTALLED 3' ABOVE THE TANK FLOOR AND/OR 3' FROM TANK SIDEWALL SLOPE. FIELD LOCATE AS REQUIRED.
3. ANODE CIRCUIT WIRE ATTACHED TO ROPE SUPPORT BETWEEN ACCESS TUBE AND EYE–RING TO BE FIELD INSTALLED SO AS TO NOT INTERFERE WITH THE TRAVEL OF THE ANODE HOOP.
4. PERMANODE ANODE HOOP CONTAINING TITANIUM MIXED METAL OXIDE ANODE WIRE SPIRRALLED AROUND A 5/16" POLYESTER SUPPORT ROPE SYSTEM.
5. HANDHOLES CUT INTO THE TANK ROOF BY TANK CONTRACTOR. HOLES SHALL BE POSITIONED IN A STRAIGHT LINE WITH (2) AT A 30' RADIUS AND (2) AT A 15' RADIUS.
6. EYE–RINGS WELDED TO THE TANK SIDEWALL BY TANK CONTRACTOR, EQUALLY SPACED, EVERY 45° (DEGREES), ± SIX INCHES AT A HEIGHT OF 12' ABOVE THE LOW WATER LINE.

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THE CITY OF AUSTIN
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ELECTRICAL AND I&C
CATHODIC PROTECTION SYSTEM GUIDELINE

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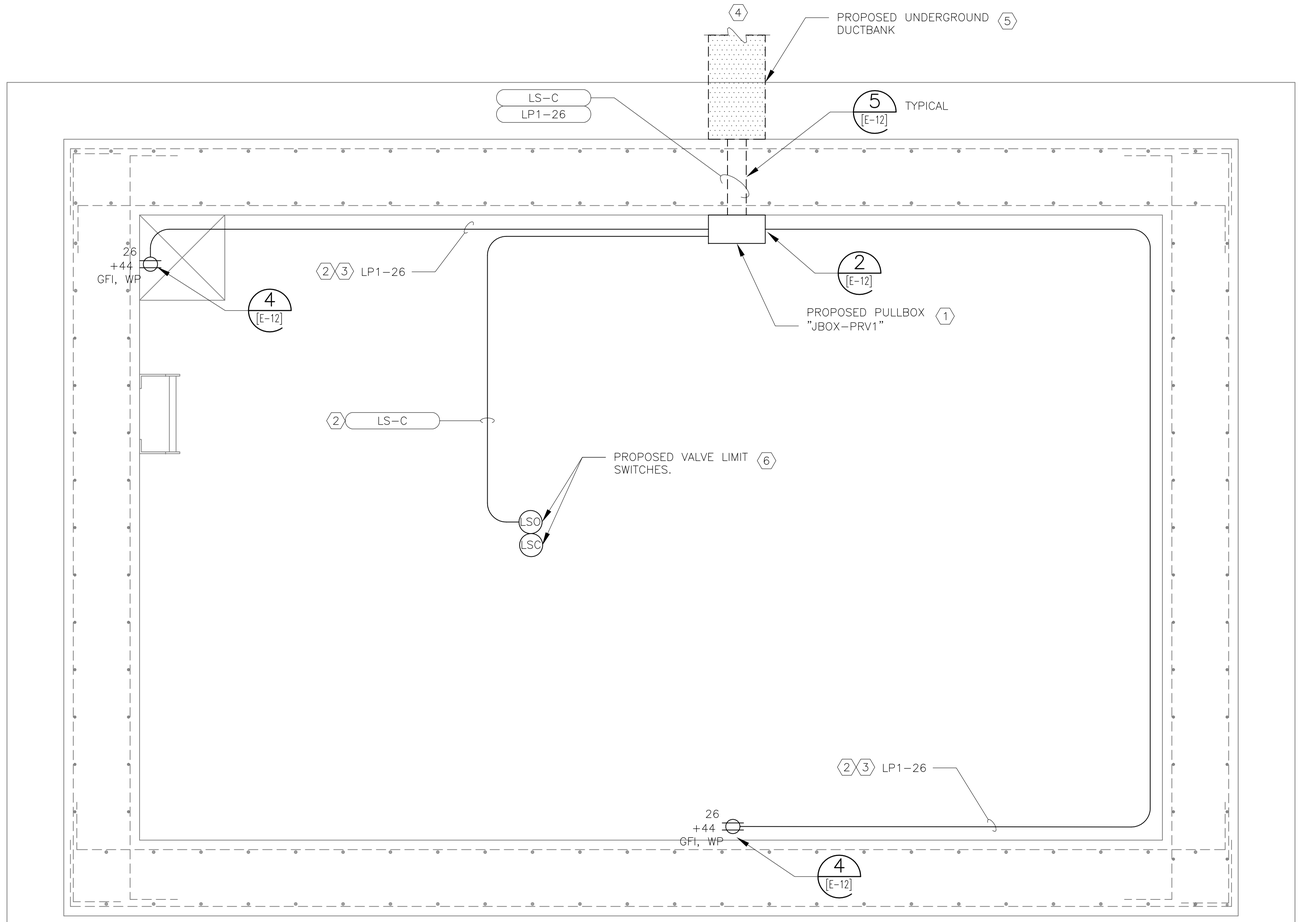

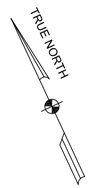

FOUR POINTS PRESSURE RELIEF VALVE VAULT
ELECTRICAL AND I&C FLOOR PLAN

SCALE: 3/4"=1'-0"

KEY NOTES:

1. CONTRACTOR SHALL FURNISH AND INSTALL PROPOSED PULLBOX AND MOUNT ON WALL PER DETAIL NO. 2 ON DRAWING NO. [E-12]. CONTRACTOR SHALL SIZE ALL PULL/JUNCTION BOXES PER, AND IN ACCORDANCE WITH, THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (N.E.C.).
2. CONTRACTOR SHALL SUPPORT PROPOSED CONDUIT/WIRE PER DETAILS ON DRAWING NO. [E-13].
3. CONTRACTOR SHALL MODIFY EXISTING LIGHTING PANEL "LP1" AND MAKE ALL FINAL TERMINATIONS. REFER TO FOUR POINTS PUMP STATION PLAN VIEW DRAWING NO. [E-05] FOR ADDITIONAL INFORMATION.
4. UNDERGROUND DUCTBANK CONTINUES TO EXISTING PUMPING STATION. REFER TO SITE PLAN DRAWING NO. [E-03] FOR CONTINUATION.
5. APPROXIMATE LOCATION OF PROPOSED UNDERGROUND DUCTBANK. SPACE AND ENCASE IN REINFORCED CONCRETE PER THE DETAILS ON DRAWING NO. [E-11]. COORDINATE EXACT LOCATION/ROUTES OF DUCTBANK WITH STRUCTURAL, MECHANICAL, HVAC, ETC. COORDINATE EXACT LOCATIONS OF STUB-UPS WITH EQUIPMENT MANUFACTURERS AND WITH STRUCTURAL, MECHANICAL, HVAC, ETC. PRIOR TO INSTALLING UNDERGROUND CONDUIT AND WIRE.
6. LOCATION OF PROPOSED LIMIT SWITCHES IS SHOWN APPROXIMATE. COORDINATE WITH MECHANICAL TO DETERMINE EXACT LOCATION OF PROPOSED LIMIT SWITCHES AND MAKE ALL FINAL TERMINATIONS. PROPOSED LIMIT SWITCHES SHALL BE FURNISHED AND INSTALLED BY MECHANICAL CONTRACTOR. PROVIDE ANY ADDITIONAL SUPPORT HARDWARE, CONDUIT, WIRE, ETC. NECESSARY TO ENSURE THAT THE LIMIT SWITCHES ARE FULLY FUNCTIONAL AND OPERATIONAL AND PROPERLY INTERCONNECTED WITH THE PROPOSED FIELD CONTROL STATION CONTROL LADDER LOGIC. REFER TO CONTROL LOGIC WIRING DIAGRAM ON DRAWING NO. [E-09] FOR ADDITIONAL INFORMATION.

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VALVE VAULT
ELECTRICAL AND I&C PLAN

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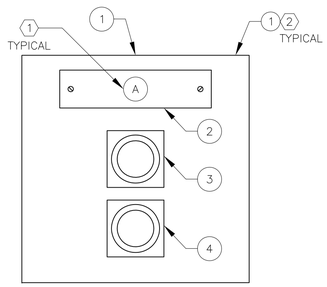


CONTROL PANEL "FPPS–FCS–001" FRONT ELEVATION

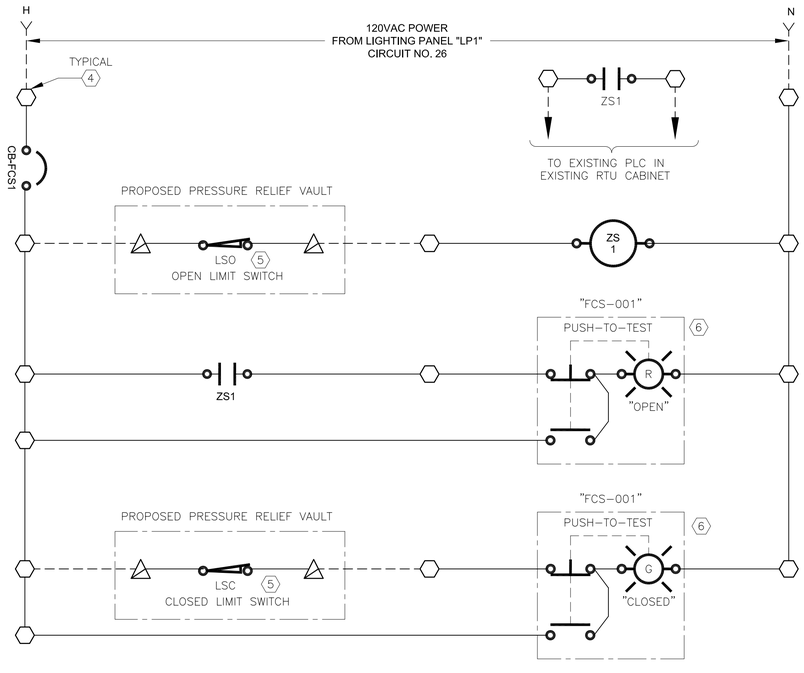
SCALE: N.T.S.

③ NAMEPLATE SCHEDULE			
IDENTIFICATION MARK	LINE NO.	LEGEND PLATE INSCRIPTION	LETTER SIZE (MINIMUM)
A	FIRST	"FPPR–FCS–001"	3/8"
	SECOND	PRESSURE RELIEF VALVE FIELD CONTROL STATION	1/8"

KEY NOTES:

1. LETTER IN CIRCLE CORRESPONDS TO IDENTIFICATION MARK IN NAMEPLATE SCHEDULE ON THIS DRAWING.
2. NUMBER IN CIRCLE CORRESPONDS TO IDENTIFICATION MARK IN EQUIPMENT SCHEDULE ON THIS DRAWING.
3. ALSO REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
4. TERMINAL BLOCKS SHALL BE MOUNTED ON BACKPLANE OF PROPOSED FIELD CONTROL STATION "FPPR–FCS–001".
5. THE PROPOSED LIMIT SWITCH IS LOCATED IN THE PROPOSED PRESSURE RELIEF VALVE VAULT. REFER TO SITE PLAN DRAWING NO. [E–03] AND TO VALVE VAULT PLAN VIEW DRAWING NO. [E–08] FOR ADDITIONAL INFORMATION.
6. PROPOSED PUSH–TO–TEST INDICATING LIGHT SHALL BE MOUNTED OF FACE OF PROPOSED FIELD CONTROL STATION "FCS–001". REFER TO FIELD CONTROL STATION ELEVATION ON THIS DRAWING.

③ EQUIPMENT SCHEDULE				
MARK	DESCRIPTION	LEGEND PLATE INSCRIPTION	LETTER SIZE (MINIMUM)	OPERATOR OR LENS COLOR
1	CONTROL PANEL ENCLOSURE, MINIMALLY SIZED 12"W X 12"H X 6" DEEP. REFER TO DRAWINGS AND SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.	N/A	N/A	N/A
2	3–PLY, WHITE–BLACK–WHITE PHENOLIC NAMEPLATE LETTER(S) CORRESPOND TO IDENTIFICATION MARK IN NAMEPLATE SCHEDULE ON THIS DRAWING.	REFER TO NAMEPLATE SCHEDULE	REFER TO NAMEPLATE SCHEDULE	N/A
3	PUSH–TO–TEST INDICATING PILOT LIGHT WITH LEGEND PLATE	OPEN	3/16"	RED
4	PUSH–TO–TEST INDICATING PILOT LIGHT WITH LEGEND PLATE	CLOSED	3/16"	GREEN



FIELD CONTROL STATION "FCS–001"
CONTROL WIRING SCHEMATIC

SCALE: N.T.S.

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ELECTRICAL AND I&C
FIELD CONTROL STATION SCHEMATIC AND DETAILS

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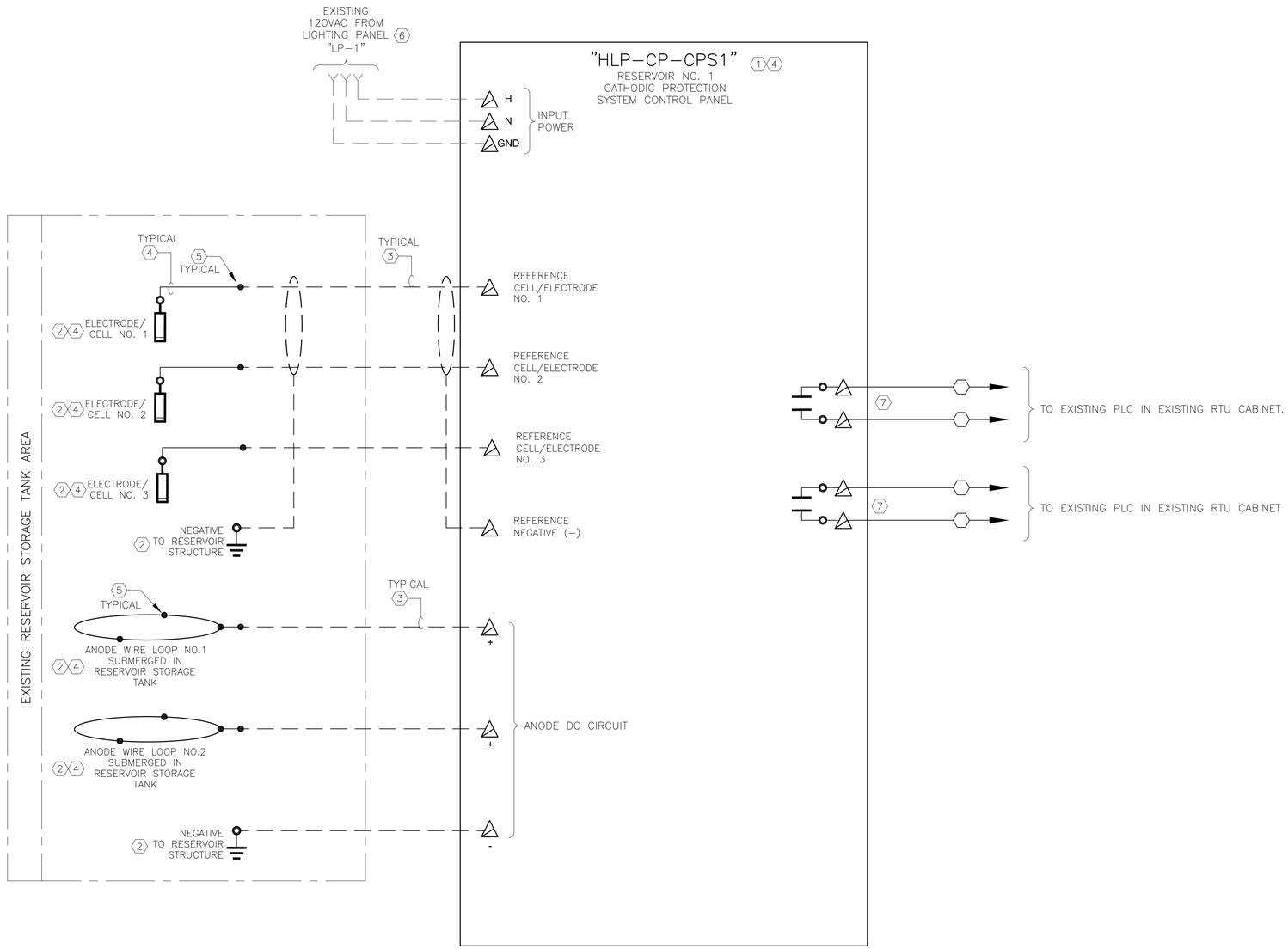

RESERVOIR STORAGE TANK
CATHODIC PROTECTION SYSTEM
CONTROL PANEL
FIELD INTERCONNECT WIRING SCHEMATIC 1

SCALE: NTS

KEY NOTES:

1. CONTRACTOR SHALL FURNISH AND INSTALL PROPOSED PACKAGED SYSTEM CATHODIC PROTECTION RECTIFIER CONTROL PANEL PER SPECIFICATIONS. SIZE, FURNISH, AND INSTALL ALL CONDUIT/WIRE AND ALL NECESSARY RELATED HARDWARE TO INTERCONNECT ALL EQUIPMENT PACKAGED SYSTEM SUB-COMPONENTS WITH THE PROPOSED CONTROL PANEL. MOUNT THE PROPOSED CONTROL PANEL SIMILAR TO THE EXISTING CATHODIC PROTECTION RECTIFIER AND PER DETAILS ON DRAWING NO. [E-12]. FURNISH AND INSTALL SUITABLE SUPPORT CHANNELS, HARDWARE, ETC. AS REQUIRED TO SUPPORT THE CONTROL PANEL, INSTALL THE CONTROL PANEL, AND MAKE ALL FINAL CONNECTIONS PER THE RECOMMENDATIONS AND WIRING DIAGRAMS PROVIDED BY THE EQUIPMENT MANUFACTURER. ALSO ADHERE TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (N.E.C.) AND THE SPECIFICATIONS. SHOULD ADDITIONAL FIELD INTERCONNECT WIRING BE REQUIRED TO FACILITATE THE FUNCTIONAL OPERATION OF THE PACKAGED CONTROL SYSTEM, THE CONTRACTOR SHALL SIZE, FURNISH, AND INSTALL THE ADDITIONAL CONDUIT/WIRE, FIELD ROUTE THE PROPOSED CONDUIT/WIRE PER THE SPECIFICATIONS, ADD ALL NECESSARY TERMINAL BLOCKS, PLC I/O MODULES, ETC., COMPLETE WITH ALL NECESSARY WIRING TO THE OWNER'S DISTRIBUTED CONTROL SYSTEM ENCLOSURE(S) TO FACILITATE A COMPLETE AND FUNCTIONAL INSTALLATION, AND MAKE ALL FINAL CONNECTIONS PER THE MANUFACTURER'S RECOMMENDATIONS, THE MANUFACTURER'S WIRING DIAGRAMS, AND PERFORM ALL ASPECTS OF THE WORK TO THE SATISFACTION OF THE OWNER AT NO ADDITIONAL COST TO THE OWNER.

2. AN ATTEMPT HAS BEEN MADE TO IDENTIFY THE ACTUAL EQUIPMENT/DEVICE REQUIRED/TO BE PROVIDED WITH THIS PACKAGED SYSTEM. THE EQUIPMENT/DEVICE LOCATION IS APPROXIMATE. THE ACTUAL EQUIPMENT/DEVICE QUANTITY/LOCATION MAY VARY. VERIFY LOCATION AND QUANTITY WITH THE SPECIFICATIONS AND THE EQUIPMENT MANUFACTURER. FURNISH AND INSTALL ALL NECESSARY EQUIPMENT/DEVICE(S), ALL DEVICE(S) INTERCONNECTING CONDUIT/WIRE AND MAKE ALL FINAL CONNECTIONS PER THE SPECIFICATIONS, THE MANUFACTURER'S RECOMMENDATIONS, AND THE MANUFACTURER'S WIRING DIAGRAMS.

3. THE CONTRACTOR SHALL PROVIDE PROPOSED CONDUIT/WIRE AS REQUIRED PER THE CONTRACT DRAWINGS, SPECIFICATIONS, AND EQUIPMENT MANUFACTURER'S REQUIREMENTS. COORDINATE EQUIPMENT/DEVICE WIRING REQUIREMENTS WITH THE MANUFACTURER'S WIRING DIAGRAMS AND THE SPECIFICATIONS. COORDINATE CONDUIT/WIRE CONNECTION WITH THE MANUFACTURER AND MAKE ALL FINAL CONNECTIONS. FIELD ROUTE PROPOSED CONDUIT/WIRE PER THE SPECIFICATIONS TO THE SATISFACTION OF THE OWNER AT NO ADDITIONAL COST TO THE OWNER. COORDINATE ROUTE OF PROPOSED CONDUIT/WIRE, VERIFYING ALL POINTS OF CONNECTION PRIOR TO COMMENCING INSTALLATION. REFER TO SITE PLAN AND FLOOR PLAN DRAWINGS FOR ADDITIONAL INFORMATION.

4. FURNISHED BY THE EQUIPMENT MANUFACTURER. INSTALL AS SHOWN ON THE PLAN DRAWINGS AND PER THE RECOMMENDATIONS OF THE EQUIPMENT MANUFACTURER. REFER TO THE PROCESS EQUIPMENT SECTION OF THE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

5. SPLICE BETWEEN THE CONTRACTOR PROVIDED WIRING AND THE WIRING PROVIDED BY THE PACKAGED SYSTEM EQUIPMENT MANUFACTURER. CONTRACTOR SHALL PROVIDE SPLICES AND SPLICE KIT CONNECTIONS AS REQUIRED PER THE CITY OF AUSTIN'S MINIMUM REQUIREMENT STANDARDS, MANUFACTURER'S RECOMMENDATIONS, SPECIFICATIONS AND INSTALLATION REQUIREMENTS. CONTRACTOR SHALL COORDINATE WITH OWNER AND PACKAGED SYSTEM MANUFACTURER PRIOR TO COMMENCING RENOVATION ACTIVITIES.

6. RECONNECT PREVIOUSLY DISCONNECTED POWER WIRING TO/FROM THE PROPOSED CATHODIC PROTECTION RECTIFIER AS PREVIOUSLY CONNECTED TO THE EXISTING CATHODIC PROTECTION RECTIFIER PRIOR TO DEMOLITION AND MAKE ALL FINAL TERMINATIONS. IF THE EXISTING CONDUIT OR WIRE IS DAMAGED OR NOT FUNCTIONING, THE CONTRACTOR SHALL PROVIDE NEW CONDUIT AND WIRE THAT MATCHES THE EXISTING AND MAKE ALL FINAL TERMINATIONS SO THAT THE EXISTING SYSTEM IS FULLY FUNCTIONAL AND OPERATIONAL TO THE SATISFACTION OF THE OWNER AT NO ADDITIONAL COST TO THE OWNER.

7. CONNECT CONTROL WIRING FROM THE PROPOSED CATHODIC PROTECTION RECTIFIER TO THE EXISTING PLC IN THE EXISTING RTU CABINET. USE EXISTING PLC TERMINAL BLOCKS IN THE RTU CABINET. CONTRACTOR SHALL COORDINATE WITH OWNERS REPRESENTATIVE FOR FINAL TERMINATION POINTS.

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FIELD INTERFACE WIRING

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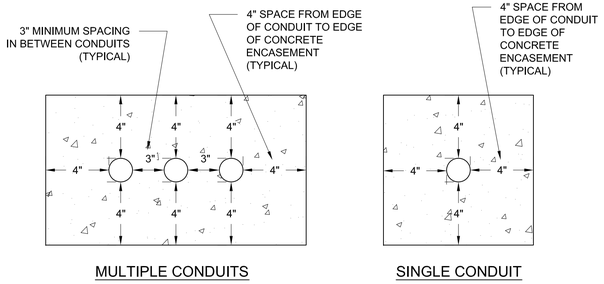

SINGLE-LAYER DUCT/CONDUIT BANK-SPACING DETAIL FOR REINFORCED AND CONCRETE ENCASED DUCT/CONDUIT BANKS

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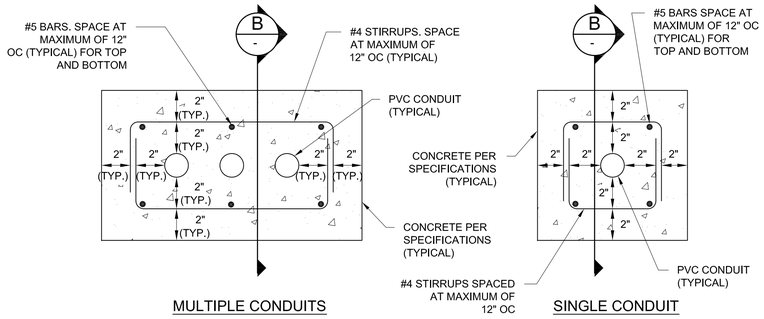
3 / -



TYPICAL SINGLE-LAYER DUCT/CONDUIT BANK REINFORCEMENT AND CONCRETE BANK ENCASEMENT DETAIL

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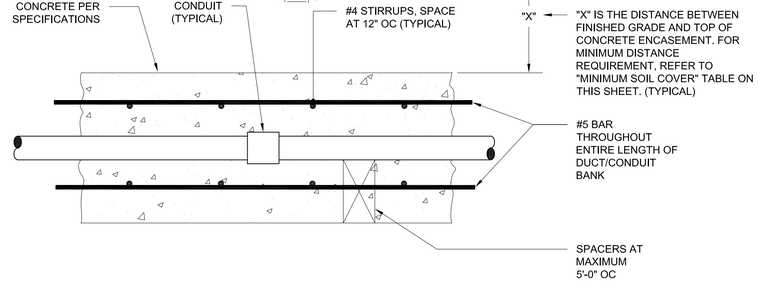

REINFORCEMENT AND CONCRETE ENCASEMENT LONGITUDINAL SECTION - "B"

N.T.S.

B / -

KEY NOTES: MINIMUM SOIL COVER (1)

CONDUIT/DUCT BANK CONTENTS	"X"
600V (EXCEPT FOR OUTDOOR POLE MOUNTED WALKWAY LIGHTING FIXTURES)	24"
ALL OTHERS	24" (2)

KEY NOTES:

(1) MINIMUM COVER IS SHOWN, INCREASE AS NEEDED PER THE REQUIREMENTS OF THE SITE PLANS/DUCT BANK PLAN/PROFILE DRAWINGS AND THE NATIONAL ELECTRICAL CODE.

(2) MINIMUM COVER FOR ALL DUCT BANKS BENEATH ROADWAYS IS 24".

GENERAL NOTES:

1. #4 STIRRUPS SHALL BE PLACED AT A MAXIMUM OF TWELVE INCHES (12") ON CENTER (O.C.). HOWEVER, THE MAXIMUM SPACING REQUIREMENT FOR THE STIRRUPS SHALL BE REDUCED WHEN THE UNDERGROUND DUCT/CONDUIT BANK IS A CERTAIN DISTANCE, AS DENOTED ON THE STRUCTURAL DRAWINGS, FROM THE WALL OF A MANHOLE/ STRUCTURE/BUILDING/ETC. (I.E. THE CONTRACTOR SHALL INSTALL MORE STIRRUPS WHEN THE UNDERGROUND DUCT/CONDUIT BANK IS WITHIN A CERTAIN DISTANCE, AS DENOTED ON THE STRUCTURAL DRAWINGS, FROM A WALL OF A MANHOLE/BUILDING/STRUCTURE/ETC.).

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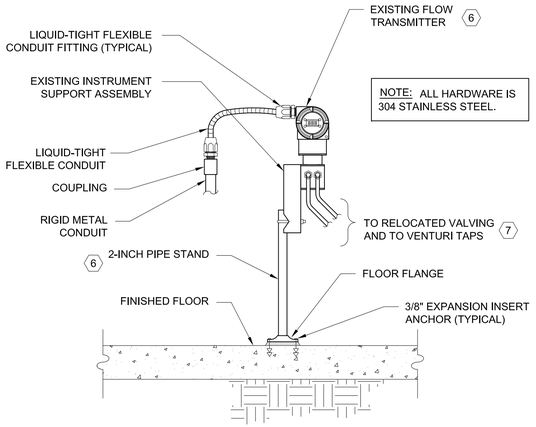

FLOW TRANSMITTER MOUNTING 1

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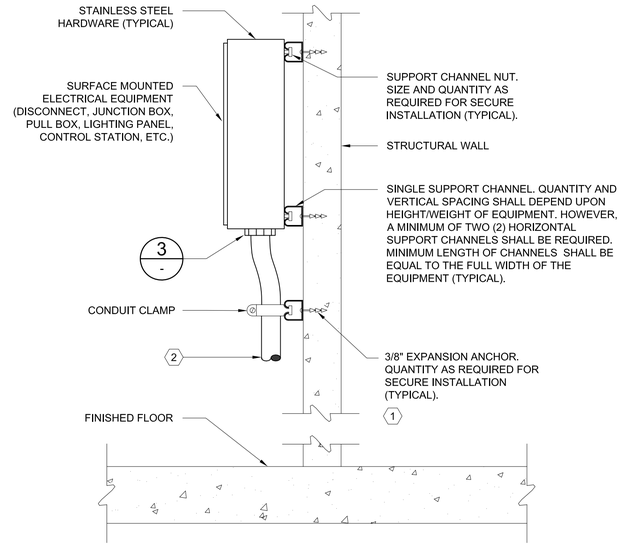
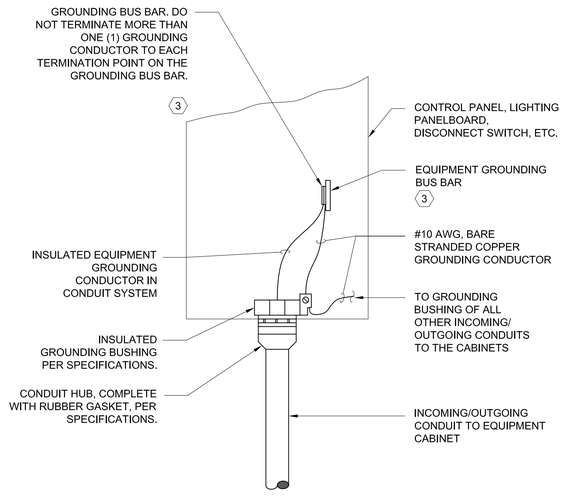


SIDE ELEVATION SURFACE/WALL MOUNTED ELECTRICAL EQUIPMENT INSTALLATION DETAIL 2

N.T.S.

KEY NOTES:

1. THE STRUCTURE TYPE TO WHICH EQUIPMENT AND/OR SUPPORT SYSTEMS SHALL BE MOUNTED MAY VARY. THE EQUIPMENT ANCHOR TYPE SHALL CORRESPOND TO THE TYPE OF STRUCTURE TO WHICH EQUIPMENT AND/OR SUPPORT SYSTEMS ARE ATTACHED. THE DRAWING REFLECTS A SPECIFIC STRUCTURE TYPE WITH CORRESPONDING ANCHOR TYPE AND IS TYPICAL FOR STRUCTURE TYPE SHOWN. TO ATTACH EQUIPMENT/SUPPORT SYSTEMS TO PRE-CAST/CAST-IN-PLACE CONCRETE WALL/FLOOR SLAB STRUCTURE TYPES, FURNISH AND INSTALL BOLT WITH EXPANSION ANCHOR. TO ATTACH EQUIPMENT/ SUPPORT SYSTEMS TO CONCRETE MASONRY UNIT (CMU)/BRICK WALL STRUCTURE TYPE, FURNISH AND INSTALL BOLT WITH EXPANSION ANCHOR.
2. CONDUIT/WIRE CONTINUES AS SHOWN ON PLAN DRAWINGS. FURNISH AND INSTALL CONDUIT SEAL WHERE REQUIRED ON DRAWINGS.
3. GROUND BUS BAR NOT NECESSARILY IN EXACT LOCATION SHOWN ON THIS DRAWING. GROUND BUS BAR DEPICTED IN THIS MANNER FOR PURPOSES OF CLARITY. CONTRACTOR SHALL FURNISH AND INSTALL SUFFICIENT LENGTH OF ALL GROUNDING CONDUCTORS TO ROUTE THROUGH DESIGNATED WIRING AREAS OF EQUIPMENT TO/FROM ACTUAL LOCATION OF EQUIPMENT GROUND BUS BAR.
4. PROPOSED CONDUIT/WIRE CONTINUES. REFER TO FLOOR PLAN DRAWINGS FOR CONTINUATION
5. WHEN REQUIRED, FURNISH AND INSTALL RAIN-TIGHT WHILE-IN-USE TYPE COVER PLATE IN LIEU OF DIE CAST TYPE COVER PLATE SHOWN
6. CLOSELY AND CAREFULLY COORDINATE THE LOCATION OF THE RELOCATED EXISTING FLOW TRANSMITTER ADJACENT TO THE RELOCATED VENTURI PROCESS PIPING.
7. FLOW TRANSMITTER PROCESS PIPING AND VALVING WILL BE INSTALLED BY MECHANICAL.



CONDUIT/WIRE TERMINATION TO WALL/RACK MOUNTED EQUIPMENT 3

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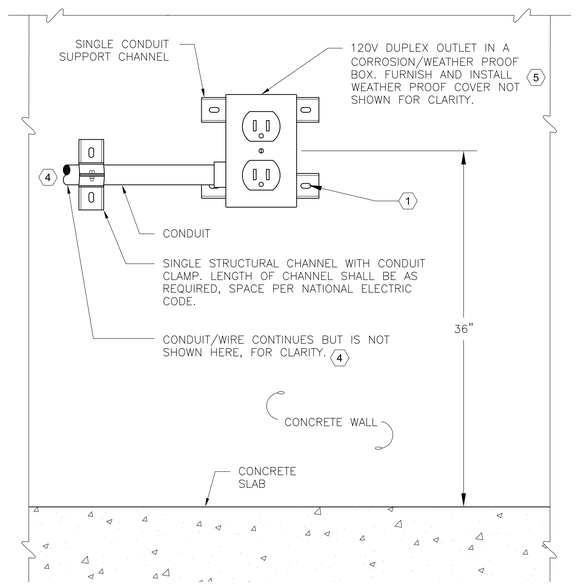

SURFACE/WALL MOUNTED WEATHERPROOF RECEPTACLE DETAIL 4

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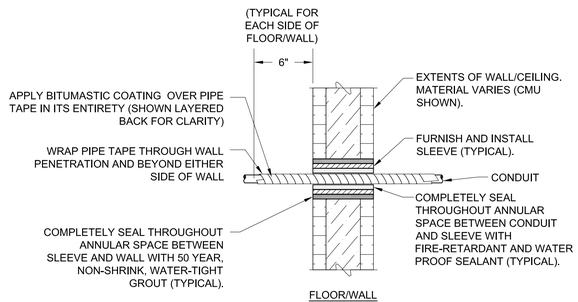

CONDUIT PENETRATION DETAIL 5

N.T.S.

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THE CITY OF AUSTIN
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TYPICAL DETAILS (SHEET 2 OF 5)

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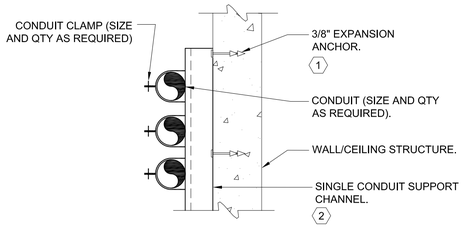

WALL/CEILING CONDUIT SUPPORT DETAIL 1

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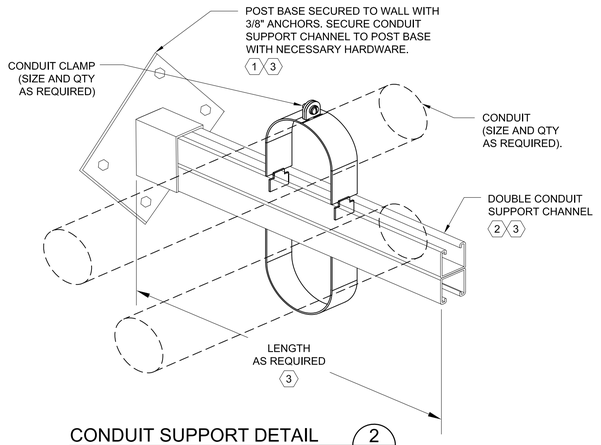

CONDUIT SUPPORT DETAIL 2

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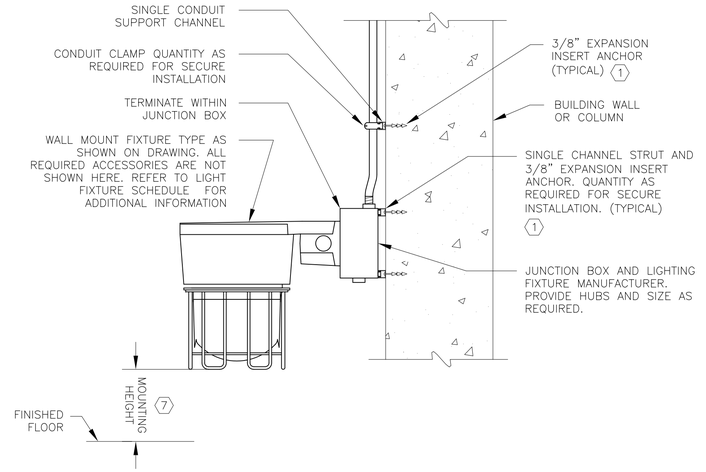

WALL MOUNT LIGHT FIXTURE DETAIL 3

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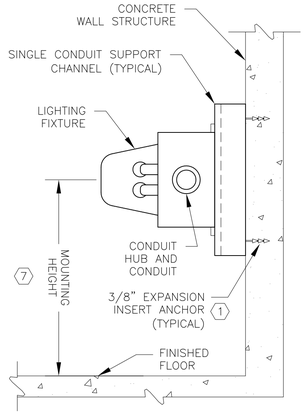

WALL MOUNT LIGHT FIXTURE DETAIL 4

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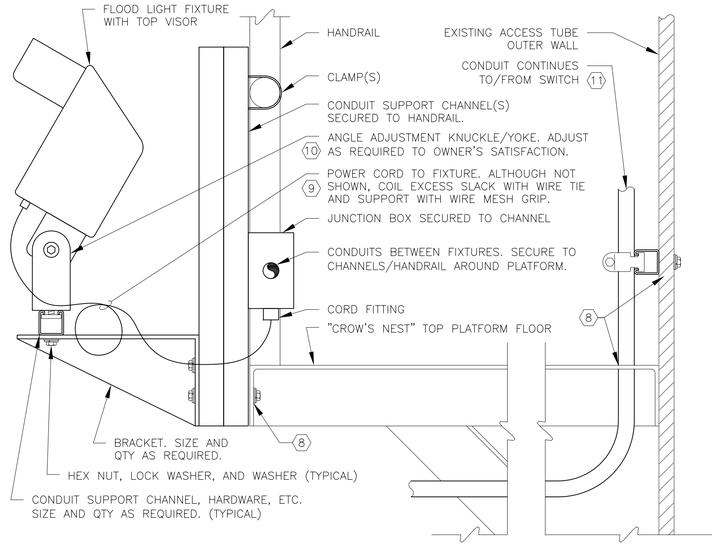

TANK INTERIOR TOP PLATFORM FLOOD LIGHTING DETAIL 5

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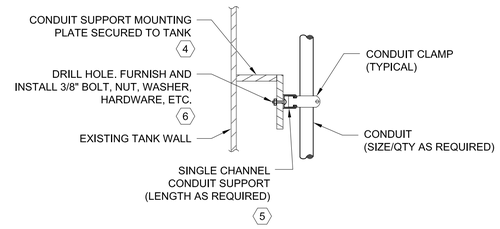

TANK-MOUNTED CONDUIT SUPPORT DETAIL 6

N.T.S.

KEY NOTES:

1. THE STRUCTURE TYPE TO WHICH EQUIPMENT AND/OR SUPPORT SYSTEMS SHALL BE MOUNTED MAY VARY. THE EQUIPMENT ANCHOR TYPE SHALL CORRESPOND TO THE TYPE OF STRUCTURE TO WHICH EQUIPMENT AND/OR SUPPORT SYSTEMS ARE ATTACHED. THE DRAWING REFLECTS A SPECIFIC STRUCTURE TYPE WITH CORRESPONDING ANCHOR TYPE AND IS TYPICAL FOR STRUCTURE TYPE SHOWN. TO ATTACH EQUIPMENT/SUPPORT SYSTEMS TO PRE-CAST/CAST-IN-PLACE CONCRETE WALL/FLOOR SLAB STRUCTURE TYPES, FURNISH AND INSTALL BOLT WITH EXPANSION ANCHOR. TO ATTACH EQUIPMENT/SUPPORT SYSTEMS TO CONCRETE MASONRY UNIT (CMU)/BRICK WALL STRUCTURE TYPE, FURNISH AND INSTALL BOLT WITH EXPANSION ANCHOR. TO ATTACH EQUIPMENT/SUPPORT SYSTEMS TO STEEL STRUCTURE TYPE, FURNISH AND INSTALL U-BOLT TYPE BEAM CLAMPS.
2. THE LENGTH OF CHANNEL SHALL BE AS REQUIRED.
3. COORDINATE/CALCULATE TOTAL WEIGHT LOAD OF CONDUIT/WIRE/CABLES/ETC. AT EACH LOCATION OF SUPPORT. FURNISH AND INSTALL ADDITIONAL SUPPORT AS NECESSARY AT EACH LOCATION, IN ORDER TO MAINTAIN A MAXIMUM OF 50 PERCENT OF MANUFACTURER'S STATED WEIGHT SUPPORT CAPACITY.
4. DESIGNED, FURNISHED, AND INSTALLED BY TANK MANUFACTURER/STRUCTURAL. DISTANCE BETWEEN ADJACENT CONDUIT SUPPORT MOUNTING PLATES SHALL NOT EXCEED SIX FEET. MINIMUM PLATE LENGTH SHALL BE 24 INCHES. COORDINATE CONDUIT SUPPORT MOUNTING PLATE REQUIREMENTS AND LOCATIONS ALONG TANK WITH TANK MANUFACTURER/STRUCTURAL. COORDINATE CONDUIT ROUTING ALONG TANK WITH LOCATIONS OF THE SUPPORT MOUNTING PLATES.
5. FURNISH AND INSTALL CONDUIT SUPPORT CHANNELS AND ATTACH TO MOUNTING PLATES FURNISHED AND INSTALLED BY TANK EQUIPMENT MANUFACTURER/ STRUCTURAL. FURNISH AND INSTALL ALL NECESSARY MOUNTING HARDWARE FOR A SECURE INSTALLATION. ADJUSTMENTS TO THE TYPE/QUANTITY OF CONDUIT SUPPORT CHANNELS SHOWN HERE MAY BE REQUIRED TO COORDINATE WITH CONDUIT SUPPORT MOUNTING PLATE DESIGNED BY TANK MANUFACTURER. CONTRACTOR SHALL FURNISH AND INSTALL THESE ADJUSTMENTS AT NO ADDITIONAL COST TO THE OWNER.
6. ATTACH CONDUIT SUPPORT CHANNEL TO TANK MOUNTING PLATE PER RECOMMENDATIONS OF THE TANK MANUFACTURER/STRUCTURAL AND MAKE ALL FINAL CONNECTIONS.
7. MOUNTING HEIGHT AS REFERENCED FROM FINISHED FLOOR/WALKWAY/PLATFORM. REFER TO LIGHTING PLANS.
8. MOUNT LIGHT FIXTURE AND CONDUIT SUPPORTS TO TANK STRUCTURE AND HANDRAILS. FURNISH AND INSTALL ALL SUPPORTS, HARDWARE, FABRICATIONS, ETC. AS REQUIRED FOR A SAFE AND SECURE INSTALLATION. MAKE PENETRATIONS THROUGH PLATFORM, WALL AND GRATING AS REQUIRED PER DETAILS, SPECIFICATIONS AND THE OWNER. COORDINATE WITH STRUCTURAL AND THE OWNER.
9. AFTER ADJUSTING POSITION AND ANGLE OF FIXTURE TO OWNER'S SATISFACTION, COIL EXCESS POWER CORD SLACK AND SECURE WITH WIRE TIE AT AN ELEVATION ABOVE PLATFORM FLOOR AND ON OUTER SIDE OF HANDRAIL. FURNISH AND INSTALL WIRE MESH GRIP TO SUPPORT AND RELIEVE STRAIN ON CORD. IF FIXTURE NOT SUPPLIED WITH INTEGRAL CORD, FURNISH AND INSTALL FLEXIBLE CONDUIT AND WIRING. MAKE ALL ADJUSTMENTS TO INSTALLATION AS REQUIRED AT NO ADDITIONAL COST TO OWNER.
10. ADJUSTABLE YOKE SHOWN. IF FIXTURE SUPPLIED WITH KNUCKLE OR OTHER ADJUSTING MEANS, MAKE ALL ADJUSTMENTS TO INSTALLATION AS REQUIRED AT NO ADDITIONAL COST TO OWNER.
11. CONDUIT/WIRE CONTINUES TO COMMON SWITCH FOR ALL FLOOD LIGHT FIXTURES ON PLATFORM. CONDUIT/ WIRE PENETRATES ACCESS TUBE IN ROUTE TO/FROM FIXTURES INSIDE TUBE.

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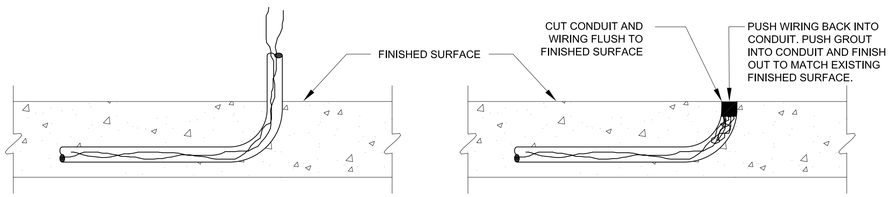

MODIFICATION TO EXISTING CONDUIT STUB-UPS — 1 / -

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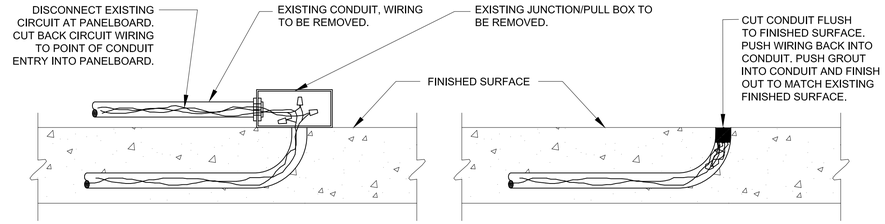

MODIFICATION TO EXISTING CONDUIT STUB-UP TO SURFACE MOUNTED BOX — 2 / -

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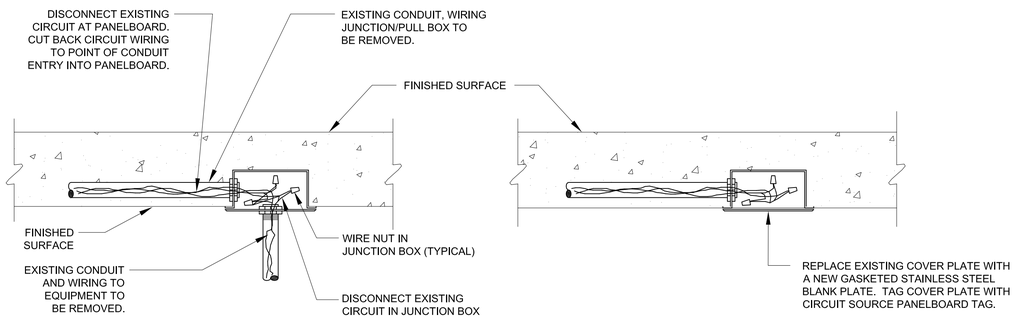

MODIFICATION TO RECESSED ELECTRICAL JUNCTION/PULL BOX — 3 / -

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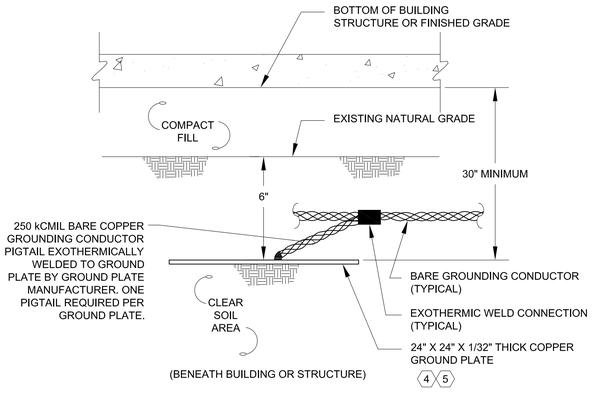

TYPICAL GROUND PLATE INSTALLATION DETAIL

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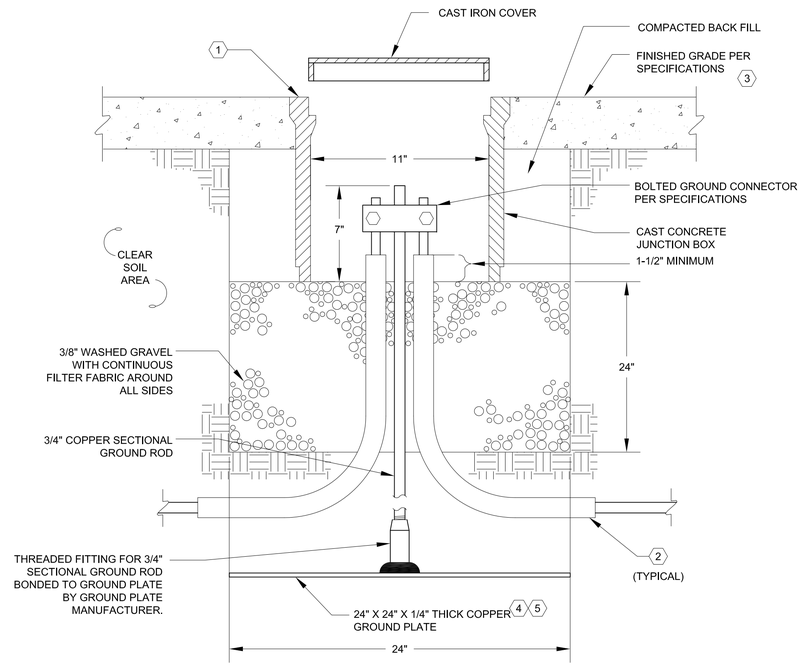

TYPICAL GROUND TEST WELL INSTALLATION DETAIL

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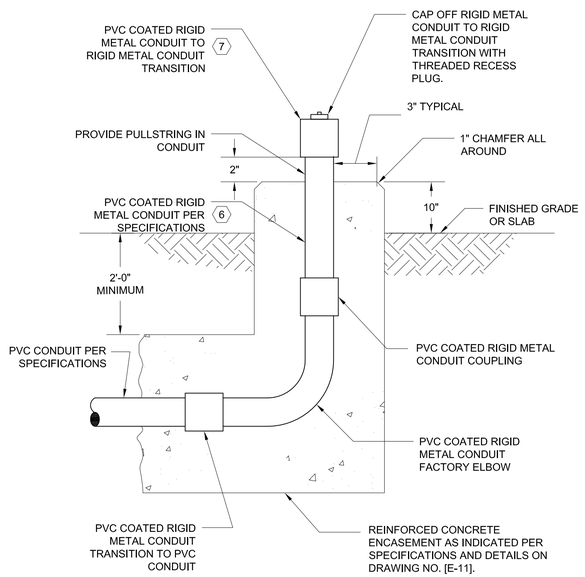

FINISHED OUTDOOR FUTURE CONDUIT STUB-UP DETAIL

N.T.S.

5
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KEY NOTES:

1. FURNISH AND INSTALL PRECAST CONCRETE PULLBOX COMPLETE WITH LID. BOX SHALL HAVE MINIMUM INTERIOR DIMENSIONS OF 11" WIDE X 14 1/4" DEEP AND 11" TALL. SUBMIT SHOP DRAWINGS AND O&M MANUALS PER SECTION 16550 OF THE CONTRACT SPECIFICATIONS. BOX SHALL BE AS MANUFACTURED BY OLD CASTLE OR APPROVED EQUAL. OLDCASTLE PRODUCTS PART NUMBERS ARE:
   - A. NUMBER 36T CAST IRON COVER–#01701430.
   - B. REINFORCED CONCRETE BODY #9700086
   - C. PULL BOX SIZE; INSIDE DIMENSIONS 10–1/2"X17"X12" (MINIMUM)
2. 250 KCMIL STRANDED COPPER GROUNDING CONDUCTOR IN 1–1/2" PVC CONDUIT, DIRECT BURIED A MINIMUM OF 30 INCHES BELOW FINISHED GRADE (NOT CONCRETE ENCASED). EACH PVC CONDUIT SHALL EXTEND A MINIMUM OF 12 INCHES HORIZONTALLY FROM THE OUTSIDE EDGE OF THE TEST WELL CONCRETE CAST JUNCTION BOX.
3. COORDINATE LOCATION OF FINISHED GRADE (PARKING LOT/SIDEWALK/NATURAL GRADE/ETC.) WITH SITE/CIVIL DRAWINGS. SLOPE FINISHED GRADE AWAY FROM TEST WELL LID TO PREVENT WATER ACCUMULATION IN VICINITY OF WELL LID.
4. CONTRACTOR SHALL COORDINATE THE INSTALLATION OF, AND PROTECTION OF, THE ENTIRE GROUNDING NETWORK (GROUND ELECTRODES AND ASSOCIATED GROUNDING CONDUCTORS IN AND AROUND THE STRUCTURE) WITH CIVIL/STRUCTURAL/MECHANICAL DRAWINGS/CONTRACTORS DURING ALL PHASES OF CONSTRUCTION.
5. COORDINATE THE LOCATION/INSTALLATION OF EACH GROUND ELECTRODE WITH CIVIL/STRUCTURAL/MECHANICAL/ELECTRICAL DRAWINGS/CONTRACTORS TO AVOID CONFLICTS. SLIGHT RELOCATION OF GROUND ELECTRODES AND/OR GROUNDING CONDUCTORS FROM THAT SHOWN ON GROUNDING PLAN MAY BE NECESSARY TO AVOID CONFLICTS. ARRANGE/INSTALL GROUND ELECTRODES IN ORDER TO MAINTAIN A MINIMUM DISTANCE OF 10'–0" FROM ANY OTHER GROUND ELECTRODE.
6. ALTHOUGH SHOWN EXPOSED AND REQUIRED OTHERWISE BY THE SPECIFICATIONS, FURNISH AND INSTALL PER THE REQUIREMENTS OF THE "UNDERGROUND CONDUIT IN DUCT BANK SYSTEM" SUBSECTION OF SECTION 16150 OF THE CONTRACT SPECIFICATIONS.
7. FURNISH AND INSTALL ALUMINUM COUPLING AT THIS LOCATION TO INTERCONNECT FEMALE PVC COATED RIGID METAL CONDUIT TO RIGID METAL CONDUIT SYSTEM. THOROUGHLY COAT THREADS PRIOR TO ASSEMBLY PER SPECIFICATIONS.

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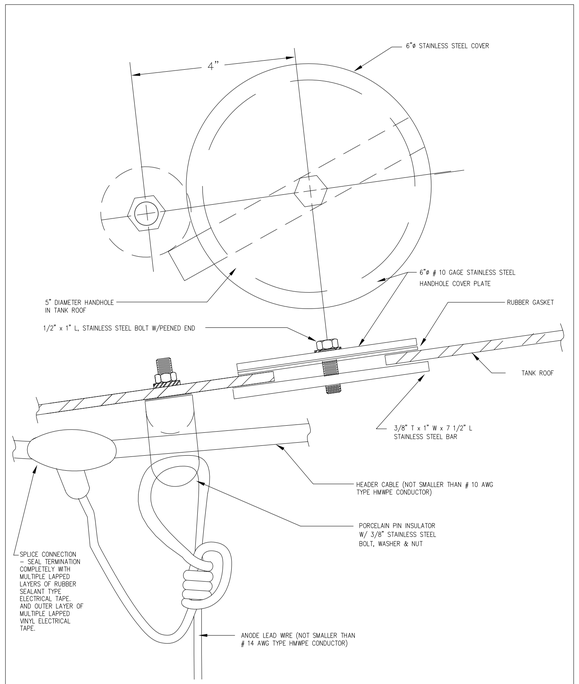
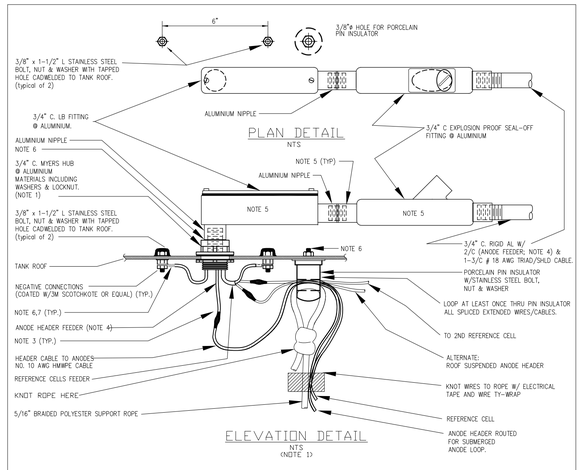


CITY OF AUSTIN AUSTIN WATER	TYPICAL CATHODIC PROTECTION HANDHOLE AND ANODE, ROOF SUSPENSION DETAIL	
RECORD COPY SIGNED BY ASOK SARKAR P.E. 07/15/2016 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 16642 1 OF 3



NOTES:

1. ELECTRICAL WORK SHALL COMPLY WITH THE NATIONAL ELECTRIC CODE; CPS INSTALLATION SHALL COMPLY WITH N.A.C.E.; APPLICABLE STANDARDS; REFERENCE CITY OF AUSTIN CATHODIC PROTECTION SYSTEM SPECIFICATION W16642.
2. FIELD LOCATE CONDUIT ENTRY HOLE OR USE EXISTING ENTRY LOCATION. FIELD VERIFY LOCATION TO AVOID TRIP HAZARD.
3. COVER CONNECTION WITH MULTIPLE LAYERS OF HALF LAPPED RUBBER SEALING TAPE AND 2 - LAYERS HALF LAPPED VINYL ELECTRICAL TAPE.
4. SIZE ANODE FEEDER PER CPS DESIGN ENGR. BUT NOT SMALLER THAN # 10 AWG.
5. FILL LB AND SEAL OFF WITH 3M 2123 RE-ENTERABLE SEALING COMPOUND.
6. APPLY OX-GUARD BY O.G. GEDNEY OR EQUAL TO ALL THREADED CONNECTIONS/TERMINATIONS - INCLUDING CONDUIT CONNECTIONS AND FITTINGS.
7. INSTALL AND TERMINATE CONDUCTORS WITH CRIMP ON WIRE LUGS.

CITY OF AUSTIN AUSTIN WATER	TYPICAL CATHODIC PROTECTION HANDHOLE AND SUSPENSION DETAIL	
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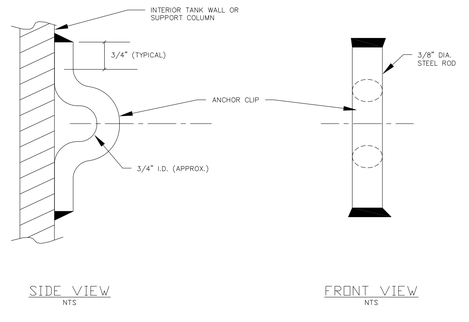

NOTES:

1. WELDING SHALL BE BY CERTIFIED WELDER/S. COMPLY WITH WELDER CERTIFICATION PER THE CONTRACTOR.
2. ALL MATERIALS TO BE NEW AND OF GRADE SPECIFICATIONS SPECIFIED AND/OR AS NOTED.

CITY OF AUSTIN AUSTIN WATER	TYPICAL CATHODIC PROTECTION EYE-RING ANCHOR CLIP FOR HORIZONTAL ANODE SYSTEMS	
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GENERAL NOTES:

1. THE DETAILS ON THIS DRAWING ARE STANDARD DETAILS BY AUSTIN WATER AND ARE SHOWN WITH THEIR PERMISSION ON THIS DRAWING AS COMPLEMENTS TO THE STANDARD AUSTIN WATER SPECIFICATIONS.

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STANDARD AUSTIN WATER DETAILS

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